

JAN 10 1931

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THE ADOLESCENT

JOHN RUFI, Chairman

Editorial 257

Modern Views on Adolescence *Fowler D. Brooks* 261

➤ An Interpretation of Recent Literature Concerning the Psychology
of Adolescence *Theophil W. H. Irion* 270

A New Method of Studying Physical Growth *D. E. Zook* 279

The Contribution of Guidance in the Problems of Adolescence
Arthur J. Jones 284

Pupil Adjustment in the Secondary School *William C. Reavis* 290

Student Activities as a Means of Providing for Adolescent Needs
Earle U. Rugg 294

➤ A Selected and Annotated Bibliography on the Psychology of Adolescence, 1920-1930
W. R. Carter 299 ✓

A Study of the "Talk Contacts" of Adolescent Pupils with their
Teachers *Howard Yale McClusky and Ernest H. Chapelle* 303

Others Say 310

Book Notes 312

Book Reviews 314

Vol.
V
•
No.
5

JANUARY, 1931

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VOLUME V

JANUARY, 1931

NUMBER 5

EDITORIAL

The subject of this issue of the *CLEARING HOUSE* presents a fruitful field for speculation by the unscientific worker whose professional equipment consists chiefly of a vivid imagination and a faulty memory. It is largely because of this fact that much of the energy of present-day psychologists is necessarily consumed in clearing away notions and ideas once generally accepted but now discredited.

According to current report Andrew Carnegie was once asked to explain the reason for the success of the many enterprises in which he had engaged. His reply was brief and to the point. "When I have a job to be done," he said, "I always make it my practice to secure the services of men who know more about that job than I do." The chairman of the committee responsible for gathering the material for this issue of the *CLEARING HOUSE* has deliberately sought to utilize similar procedure. The recognized standing of the individuals who have served on his committee and of all who have contributed material is offered as evidence of the value of the plan followed.

During the last twenty years a great deal has been said about the public high school as an institution for adolescents. Much less has actually been done about it. The task of adjusting secondary education to the needs of modern youth is not a simple problem concerning only the principal of the high school. It instead calls for painstaking study by every administrator, supervisor, and teacher who has a part in the program of the secondary school. The material of

this issue is made available in the hope that it will prove of interest and value to every thoughtful student of the subject.

J. R.

There is no dearth of literature on the subject of adolescence, but there is a great difference of opinion as to the actual importance of it in the modification of school procedures. Concerning the fundamental fact of adolescence there can be no question, and that in a general sense it is the time when, as Whipple says, "Jimmy of the grades becomes Mr. Brown of the high-school senior, while his sister Mable undergoes almost before our eyes an even more striking transformation into young womanhood."

Pupils who are preadolescent and of normal age when they enter the school grow up rapidly in the next two or three years of their junior-high-school lives. On the average the boys grow seven and a half inches in height, and gain thirty and a half pounds in weight between the ages of twelve and a half and fifteen and a half; girls, between the same ages, grow five and a half inches in height and gain twenty-eight pounds in weight.¹ During this same period breathing capacity, especially among boys, shows a marked development, heart capacity and blood pressure increase rapidly, and blood temperature increases somewhat.

These modifications, says Hollingsworth,²

¹ Cf. Koss, L. V. *The American Secondary School* (Boston: Ginn and Company, 1927), pp. 50-55.

² Hollingsworth, H. L. *Mental Growth and Decline* (New York: D. Appleton and Company, 1927), p. 233.

produce changes in the incoming sensory manifold as well. They make adjustments, posture, gestures awkward, they outrun the duration of garments, and provoke clumsiness both of appearance and of action. The self-consciousness of the individual is thus increased, and further magnified by the comments and gibes of elders and associates. The mass of organic sensation is not stable, but is undergoing constant change. This modifies that sensory background which in large measure comprises our self-awareness at a given moment. Self-attentive tendencies are thus encouraged, and attention easily deflected from objective activities to subjective conditions.

Pupils entering the junior high school are, of course, not all preadolescent nor are they all between twelve and a half and thirteen years of age. Some pupils, generally of a high order of verbal intelligence, are one, two, or even three years younger. Due to slow progress through the grades, to illness, to change of schools, and to other causes, many pupils are considerably older.

Sometimes the junior high school is spoken of as a "school for adolescents." This is incorrect. While there are often overaged boys and girls and some physiologically precocious children who have already become adolescent by the time that they have reached the junior high school, it is nevertheless for most children a "coming-of-age" school. It is a friendly environment in which the children live as they grow tall and awkward and their voices change and sex knowledge and secrecies and fears become their encumbrances. It is a world in which they find themselves generally adequate to accomplish the tasks they set out to perform at a time when distrust of one's self and one's capacity is marked.

The misunderstandings regarding adolescence have been largely due to academic arguments as to whether the onset of adolescence is saltatory or gradual; whether the

appearance of instincts is periodic or serial. One school of psychologists has asserted that since adolescence is a gradual process no sudden changes in school organization or curriculum should be experienced as pupils progress through the school system. Hence, the argument has been that the junior high schools should be very much like the elementary school. This argument would have more basis if we were more thoroughly satisfied with the typical elementary-school curriculum and administration. If the elementary school has given broad opportunities for social coöperation and for creative work, then the most enthusiastic spokesman for creative environment would scarcely urge that there should be any sharp break at the beginning of adolescence. If, however, the fourth, fifth, and sixth grades are characterized by arithmetic drill, spelling and punctuation drill, fact-geography and fact-history drill, and if the children march in and out of the school and spend the school day generally in following directions, and in accepting others judgments and others beliefs as their own, then the need for radical modification in school control and in the curriculum at the beginning of adolescence should be obvious.

The first problem of the junior high school is to deal adequately with children just preceding adolescence, during the unique period which is characterized by marked physical, mental, and emotional traits. This is the age of Penrod. All of the instincts and characteristics of adolescence may perhaps be discovered in a child of this age, but his dominant characteristic is his joy in the small gang, the tireless activity, the rich romantic life, the secret life of huts and caves, the lack of regard for adults opinions, and unwillingness to share life with adults except as the adults become as little children.

Into the lives of these young folks the junior high school enters and frequently

EDITORIAL

takes a most important place. It furnishes the opportunity for many secret codes, for much physical activity, and for gang organization in the homeroom. Withal it surrounds each one with so friendly an atmosphere and promotes so much self-confidence that the children grow into adolescence with a minimum of repression and with little danger of inferiority complexes and split personalities.

From this point on it is the task of the junior high school to increase desirable individual traits exploiting the pupil's peculiar abilities so that he may find the joy of contributing to the community in such ways as he is able. For the early adolescent is characterized by an uncertainty of self, sometimes expressing itself as stolidity and impudence. Under the friendly guidance of an understanding teacher, however, this uncertainty may be sublimated into a relationship of confidence and loyalty to teachers, to groups, to the school, and to the community beyond the school.

This uncertainty of self is, to an extent, the result of physical changes due to rapid growth, circulatory disturbances, especially the increasing blood pressure, to the sexual coming of age which results in many "long circuitings," or conditioned reflexes. In some cases maladjustment, due to the repression, the secrecies, and feeling of guilt established by social taboos is so great as to require the attention of a psychiatrist. In an intelligently conducted junior high school, however, the sympathetic guidance and the successful exploits of abilities are sufficient to dispel the complications from nearly all cases. It is feasible thus to condition the pupil's behavior intelligently so that security and self-esteem may accompany altruistic services, pride in exploits, skill in music, art, shop, and other expressions of self.³

³ Cf. Bolton, F. E. *The Child, His Nature and His Needs*. Edited by M. V. O'Shea, The Children's Foundation, 1924, pp. 122-123.

By means of a flexible and broadly conceived curriculum and by means of guidance which takes into account the child's emotional life as well as his special abilities and possible future vocation, the school, on the one hand, fosters the sublimation of the sex instinct into artistic expression, appreciation of nature or chivalrous exploits, and on the other hand, subordinates the child's sex life to a program involving physical, social, and intellectual activity unrelated to sex, such as football, debates, and committee work.

Because the junior high school is experimental, its nature and purposes can be determined only in part by philosophy. We recognize the potential importance of stimulating and controlling the attitudes, interests, and habits of the children as they come into adolescence. We know how important the initiation into adult society has been in all primitive and static societies. We know that for a changing society, a society in which the standards of approved behaviors must be kept fluid, this initiation is a far more complicated and significant affair.

Thus, the African boy and girl at the time of puberty are taken respectively into the boys' "bush" and the girls' "bush" for an initiation that lasts for two or three years. During this time the youths are associated with adults who typify the virtues of the tribe. Here they must learn to bear pain without flinching, to fight, to hunt, to accept such responsibilities as the efficient adult bears. The method used is to stimulate the youth by example and by legend and to control the approvals and other satisfactions so that the desired behavior will be habituated and fortified by the emotionalized attitudes and the ideals implicit in the mores of the tribe.

In the same way boys of Athens lived at the period of early adolescence in an idealized community and remained there until they were ready to take up the citizenship

duties of early Athenians. In Athens, the girls' initiation was purely a domestic affair.

Such is the function of the junior high school. It is the process of initiation into the Great Society, such as is best suited to children at puberty and to the nature of the society to which they will increasingly belong.

A democratic society by its very nature is flexible. It has no more fixed ideals than the formation of a more perfect union, the establishment of justice, the insurance of domestic tranquillity, the provisions for the common defense, the promotion of the general welfare, and for securing the blessings of liberty for posterity. The initiation into such a society demands not so much a loyalty to existing institutions as a belief that a better world is possible and a readiness to experiment in the improvement of it.

The outstanding importance of adolescence to formal education is that the culmination of many factors is synchronous—puberty, compulsory school age limit, a change from school to school with new teachers, methods, and organization, the physical growth, the putting on of adult clothes and adopting of adult manners and customs; all these are accompanied by and to some extent result in almost unpredictable manifestations of bashfulness, forwardness, boisterousness, giggling, absent-mindedness, sullenness, obstinacy, intense interests, and outstanding accomplishments.

The many instinctive tendencies that have been developing in a kind of humdrum manner become organized, as it were, under the influence of the developing sex instinct; and even sensory powers that have reached maximum development years before become modified. Adolescent children become more attentive to, more interested in many sensory activities that furnish a medium for earning social approvals, and the promise of adventure.

Adolescents, if they have an interest or talent, make surprising progress in brief time. But this intellectual spurt does not automatically carry over to school work unless the opportunity is given. The same boy may flunk his physics who accomplishes wonders with his own wireless outfit, made and to some extent invented by himself. If, on the other hand, the school can make this contact, can exploit the pupil's out-of-school activities, and the "long circuitings" of his changing nature, in conjunction with his school work, the response will be such as to vitalize the class procedure, and to assure that the school's influence will carry over into the daily, out-of-school life of the pupil.

With bright children, the change from preadolescent, insignificant sex love (often for older persons) to conscious sex love is generally a minor matter. If it is violent, it is masked; but it emerges so gradually that it is not half so exciting as a school election, or a baseball game.

With mentally inferior children, the sex relationship may be more difficult, sometimes amusing, sometimes embarrassing. Here the temporary drawing apart of the sexes is very real, amounting in some cases to sex-antipathy, for a period, followed by somewhat dangerous and more violent courtships. The question of sex hygiene instruction also becomes a very vital one at this point.

It must be obvious that mental and physical hygiene are of more significance at this stage than is any amount of book learning. Often there is no opposition between these aspects of education. Grammar and mathematics may indeed contribute to the joy of living of some, perhaps many, children. If they do, such study should be encouraged. If for many children they do not, however, then for them a more rational regimen must be found.

As the children enter senior high school

MODERN VIEWS ON ADOLESCENCE

and attain middle adolescence and leisure they reflect rather the economy of the leisure adult class with its raucous noise and conspicuous waste. In gentler moments they dream their dreams of love and marriage and vocation and conquest; and occasionally they wonder about the meaning of life and death. But seldom does the school have an opportunity to share in those gentler or more solemn moments. Occasionally the

medium of literature or creative writing or art or music or science offers for some youth a chance to escape the cheap mores which have so frequently impinged on him and his confreres and parents and even his teachers. And such a freed spirit gives us some insight of the terrific waste of the generations of potentially creative adolescents which society allows to run to waste.
P. W. L. C.

MODERN VIEWS ON ADOLESCENCE

FOWLER D. BROOKS

EDITOR'S NOTE: Through the excellence of his investigations, his classroom teaching, and his writings, Mr. Brooks has done much to clear away the debris of discredited ideas in this field. His latest and most significant contribution has been in the form of his volume The Psychology of Adolescence which appeared in 1929 and was very favorably received. Until recently Mr. Brooks has been a member of the staff of Johns Hopkins University. He is now the chairman of the departments of education and psychology at DePauw University. Secondary-school administrators and teachers will find the following article both interesting and helpful.

J. R.

Psychologists, novelists, teachers, and other students of human nature entertain a wide variety of views on the many important problems of adolescence. The earlier writings on the subject, notably the two-volume classic by G. Stanley Hall and some of the earlier work of his students, contain much material of doubtful value, as would be expected since they were published shortly before the appearance of the Binet tests in Paris in 1905, and more than a decade before other notable work in devising valid, reliable means of mental measurement. Early widespread views, however, tend to persist when supported by some classic work, even though later investigations which employ more adequate techniques of research may show the need of revision. Inertia seems to characterize human minds and beliefs as well as material substances which we studied in high-school or college physics.

We consider briefly two important problems of adolescence with some of their educational implications; viz., certain features of development and the integration of per-

sonality traits during the teens. In discussing development we have omitted the gross facts of physical development since they are so well known and need not take any of our time now.

Probably the majority of teachers find that fact and fancy are hardest to distinguish in the case of adolescent mental and social development. The reason is not hard to find. Writers on the subject have said so many contradictory or incongruous things that the person who reads extensively is often confused, not knowing what to believe; or, trying to believe all he reads from reputable writers on adolescence, he is almost forced to conclude that adolescence is so variable and such a time of inconsistencies that he cannot understand it or use any of the facts about it for the two practical problems of predicting and guiding or controlling adolescent behavior.

We have collected an extensive list of statements of alleged characteristics of teenage development which have been set forth by reputable writers on the subject—not novelists or others whose primary interest

is not psychological truth, but psychologists and educators whose avowed and serious purpose has been to depict adolescence accurately. Thus it is alleged¹ "that mental growth between nine and ten is usually greater than that between any two years later on; that the three-year period of childhood preceding pubescence is one in which both mental and physical growth 'is slower than at any time until near complete maturity'; that with the onset of puberty 'there is a marked acceleration in the development of the whole psychic life'; that the mind develops more rapidly during adolescence than during childhood, and that many new sorts of ideas now make their appearance; that the power to reason increases rapidly during adolescence; that vocabulary seems to be halted in its growth for a year or two at the beginning of adolescence; that during preadolescence there is 'even a foreshadowing of reason'; that the mental powers and capacities present during adolescence were present earlier; that 'differences between adolescence and childhood are more in degree than in kind'; that adolescence means the birth of a new self; that at adolescence comes a sharpening of the senses, and that laboratory experiments show visual and auditory acuity probably at a maximum at twelve; that 'memory for isolated impressions reaches its climax in the early teens'; that at the dawn of adolescence the special sensory memories are numerous; that this is the golden age for motor memories; and that 'memories of high ideas, self-sacrifice, and self-forgetfulness are cherished'; that the increase in strength of memory varies from year to year, but that while one kind of memory is increasing rapidly another kind is not; that 'growth of memory does not necessarily accompany intellectual development'; that memory reaches its climax at sixteen or seventeen; that 'there is

no memory period, no time in early school life when the memory is stronger than it is at any later portion of the child's life, a period especially adapted to memorizing'; that the mind at times 'grows in leaps and bounds'; that adolescence lasts ten years or more, 'during all of which development of every sort is very rapid and constant'; that mental growth during adolescence is regular and at a gradually decreasing rate; that within a few weeks one can often note 'conspicuous intellectual changes'; that mental growth ceases about age thirteen or fourteen; that the range of individual differences in all psychic tests increases during adolescence; that the period of greatest variability in mental traits is childhood, not adolescence."

One may also find statements to the effect "that physiological and anatomical ages correlate 'strikingly' with mental growth, and have direct bearings on pedagogical age; that anatomical development is not closely related to intellectual and social development; that a new interest arises in the world beyond the immediate surroundings; that there is a rebirth of the imagination; that the adolescent girl, who but almost yesterday was willingly guided and ruled by her parents, suddenly comes to resent 'direct commands, wants to know why, rebels,' etc., and 'that after sixteen there dawns a period when she demands that her teacher shall know'; that at thirteen she is a dreamer, and at nineteen tries to make her dreams come true."

Strange as it may seem, we find one author saying on one page that during adolescence "love of nature is born," and on another, that the preadolescent revels "in all features of nature" such as fields, hills, forests, animals, and especially water.

The literature of Hall and some of his students has many speculations that the mind is undoubtedly "pushed and pulled by the old desires and ancient hates of

¹ See Brooks, *Psychology of Adolescence*, pp. 59-61.

MODERN VIEWS ON ADOLESCENCE

ancestors that many thousand years ago struggled for a higher human life"; and that the characteristics of boyhood and girlhood "seem to be those of a relatively ancient stage in racial development."

If it were appropriate and if we had space we would like to present a great deal of valid, reliable evidence amassed during the past decade showing in detail the probable facts of teen-age mental development, but we will have to be content to give the conclusions which seem to follow from a careful check of all of the more important researches on the subject.

Mental growth during the teens tends, according to the available evidence, to be regular. We have found no valid, reliable data indicating that it proceeds by "leaps and bounds" as the proponents of the doctrine of saltation believe; and scant indeed is the reliable evidence tending to show that a few weeks in the teens produce conspicuous intellectual changes. Now changes in complex mental traits may be due to the coöperation of many factors each of which has been developing gradually and unobserved; but we see only the marked change in the complex trait and infer that it has grown in leaps and bounds. Thus it is perfectly normal that self-assertion and independence and persistence in seeking to accomplish one's purposes should become stronger as sexual maturation brings the youth to manhood or womanhood. These traits operating in conjunction with the greater mental ability of the teens may make the youth seem to have developed very suddenly. Frequently it happens that a high-school pupil seems to "wake up" in a subject and make startling progress for a short time thereafter. For example, a student may seem to be very dull in plane geometry or algebra, and his development in the subject may seem to be at a standstill, until suddenly he catches on and forges ahead rapidly. Uncritical ob-

servation or loose statement may note this fact as evidence of saltation, but the writer is inclined to believe that it is largely due to instruction which was over the pupil's head and left him groping about until by trial and error he came to understand it. His growth in mathematics while he had little instruction on the meaning of mathematical proof may have been as great as it was after he mastered a very difficult early step. Poor instruction in plane geometry often gives the pupil little guidance in understanding "what it's all about." The writer had an interesting experience with a tenth-grade class in plane geometry several years ago in a small high school. The first month was spent on the first half-dozen propositions and twenty-five or thirty originals in Schultze and Sevenoak's *Plane Geometry*, trying to get the pupils to see that the proof really proved the proposition or original. The common attitude of many high-school students towards the proposition, "Two triangles are equal if the two sides and the included angle of the one are equal, respectively, to the two sides and the included angle of the other," was, "Any one can see that, so why waste time trying to prove it?" But at the end of the first month every student in the class had at least a fair understanding of the nature of geometric proof in Euclidean geometry. During the succeeding eight months all of the propositions and practically all of the 1032 originals were solved by all of the class. Frequently when pupils came to class and did not have some originals which had been assigned for that day they would request that discussion of the unsolved originals be postponed until they could have some more time to work on them. If one were to measure progress in mastering plane geometry merely by the number of propositions and originals done per month, manifestly it would have been very slow indeed during the first month as compared with

any later one; and yet we believe the first month's progress was equally as great as during any subsequent month. Some would say it was greater because it involved bridging the gap between algebra and geometry in an American secondary school before the days of unified or correlated mathematics.

Much of the observation which sees conspicuous intellectual changes in a few weeks in the teens is doubtless superficial to the extent of overlooking or discounting gradual development of constituent traits which as a more complex whole seem to be developing so rapidly. In other cases observation without the support of valid, reliable tests is not an adequate means of appraising development.

— Annual retests indicate that mental growth is regular during the teens, as a general rule, but they do not show regularity in certain cases of personality disturbances, nor would we expect them to do so. It often happens that a youth with some interfering emotional attitude or other bad mental adjustment does not use all of his powers—may be unable to use them on the test—and so does not do so well; but a year or two later he may do remarkably better than before, just because proper treatment by psychiatrist or other mental hygienist has removed the interfering factor. The fact that mental growth normally tends to be regular during the teens does not mean that the adolescent will work with machine-like regular effectiveness doing equally well at various intellectual tasks day by day, week by week, or month by month. Sleep, diet, exercise, interests, purposes, associates, disease, fatigue, and other factors besides his intellectual ability affect achievement at any given time.

On the average, mental growth continues through the teens. Retests show that adolescents generally have more mental ability at eighteen than at fifteen, or sixteen, or seventeen. In many quarters the view is

current that the average adult in the United States has the mental ability or intelligence of a thirteen- or fourteen-year-old, and that intelligence ceases to grow some time between the thirteenth and fourteenth years. The results of Army testing are cited as evidence for these two conclusions. We have no desire to bore the reader with a long discussion of psychological testing in the Army during the war. We have tried² to evaluate the evidence on age of cessation of mental growth, and have concluded that the youth at eighteen is likely to have greater intellectual powers than he had at any time before this year.

Sometimes it is held that mental development after fourteen or fifteen is due to the greater number of experiences or a greater familiarity with life situations, rather than to growth of intelligence. Without any lengthy technical discussion, it seems to the writer³ "that the man at twenty-five or thirty can plan more effectively; that he can reason better on complex problems involving a diversity of events, people, motives, and abstract relations; that he can manage himself and his affairs more efficiently; that he has greater power of adjusting himself to increasingly complex situations; and that he possesses these highly significant abilities in greater measure than at fifteen. We see no reason for believing that *these* greater capacities are due merely to either the greater number of experiences or a greater familiarity with life situations, whereas the increase in scores on stock intelligence tests up to the age of fifteen is to be regarded as due to the growth of intelligence; but rather do we believe that the increase of the former represents an augmenting of that power of handling complex affairs or situations which is called intelligence. Furthermore, we are

² Brooks, *Psychology of Adolescence*, chapter 5. See also Freeman, *Mental Tests*, pp. 357-364.

³ *Op. cit.*, pp. 115-116.

MODERN VIEWS ON ADOLESCENCE

inclined to believe that any increase after age twenty in abilities of the sort just mentioned must be included as evidence of the growth of intelligence, as well as any increase in the ability to solve arithmetical problems, memorize digits, give relatively narrow school information, define words, give opposites, make substitutions, or do any of the other tasks of the present-day intelligence examinations."

Thorndike in *The Measurement of Intelligence* (p. 468) says: "The verbal and mathematical tasks which bulk so largely in these examinations may be more like those which occupy the intellects of children from five to fifteen than those which occupy the intellects of young people from fifteen to twenty-five, or those which occupy the intellects of men and women from twenty-five to thirty-five." He notes again that the development of specialized abilities may begin "their rapid rise in altitude at an age when CAVD⁴ altitude has almost ceased to gain."

The evidence also indicates that such separate complex mental functions as memory, judgment, reason, etc., are likely to be more effective at eighteen than at any age before that time. The view that reason is born during adolescence is quite untenable. Thus some one has reported the case of a boy of two who was pulling the hairs on his father's wrist. To his father's request, "Don't, Donald, it hurts daddy," the little fellow replied, "It didn't hurt grandpa." Of course he made his mistake in failing to distinguish between the patience and long-suffering of fathers and grandfathers; but we cannot set up correct inferences as the *sine qua non* of reasoning, since medicine, statecraft, business—the whole adult world—have their mistakes.

—Mental growth seems to be more rapid

⁴ CAVD is intellect as defined by an elaborate series of tests made up of completion, arithmetic reasoning, vocabulary, and directions.

during childhood than during adolescence. The mental growth curve from six to eighteen, as derived from using existing mental tests, tends to be convex with considerable flattening after the fifteenth or sixteenth year.

What is the relation between mental and physical development? Is the mentally well-developed boy weak physically or in poor health? Is he invariably or generally very well developed physically? Or is the relationship between mental and physical traits too loose or indifferent to permit accurate estimates of the one from the other?

Popular opinion clings tenaciously to the view that mental and physical traits are inversely related and are organized in accordance with the doctrine of compensation. The weak puny body of some bookworm is contrasted with the hulking body and brawn of some youth who cares little or not at all for books. The bright youth who breaks down from overwork is cited as a shining example of nature's alleged levelling process. Compensation is a comforting doctrine. The boy lacking in intellectual power makes up for it by being very strong physically. The lack of one desirable trait is taken as evidence for the presence of some other equally desirable one. The data from scientific investigation of growth and development have shown for thirty-five years that the doctrine is not sound. Exceptions can be found but they merely prove the rule that mental and physical traits are not closely and negatively correlated.

During the past thirty years much evidence has been accumulated which has been interpreted as meaning that mental and physical development are closely and positively related at each of the adolescent ages or at each grade level in the secondary school. We have canvassed the literature⁵ on the subject and have conducted some investigations on our own account, and are

⁵ *Op. cit.*, chapter 6.

forced by the facts to conclude that physical status is not an accurate index of mental ability at any age from six to twenty, or in any grade from kindergarten to sophomore year in college. The difficulty with some of the otherwise excellent studies is that conclusions were based upon correlations between mental age and certain physical traits in case of groups of individuals having a wide range of chronological ages, say from five to fifteen years; for example, in one group studied by Baldwin⁶ the mental age of 49 girls, ages five to fifteen years, correlated .83 with ossified area of wrist bones. Mental growth and physical development take place in time, and when the effect of chronological-age range upon the coefficient of correlation was eliminated or held constant by using the partial correlation technique, the correlation between mental age and ossified area of wrist bones was .09. Studies by Gates, Freeman and Carter, and others support this one. In one of them the correlation between anatomical index and mental age averaged .74 for boys and girls, whereas the average for boys and girls was .82 in case of mental age and chronological age, indicating that chronological age was a better index of mental ability than was ossification of wrist bones.

As a general proposition, bright adolescents tend to average slightly better physically than those of average or below average mental ability and of the same chronological age, but the two groups overlap so much that physical status cannot be inferred from mental age with any degree of accuracy, nor can mental ability be estimated accurately from physical status. On the whole the correlations are low positive. We should note, however, that acceleration in physiological development of high-school students seems to correspond roughly to acceleration in social development, and that high-school girls who are retarded in physio-

logical development have been found to do less effective school work than girls of the same IQ who are accelerated physiologically.

Grouping high-school pupils according to height, weight, ossified area or ratio of wrist bones, or strength of grip, back, legs, or arms, or by all of these physical measures together, is likely to give sections very little more alike in scholarship than would be secured if the students had been sectioned merely by chance. We need not expect the tall, heavy, or strong boys of a given age or year in high school to make all of the good scores in Latin, chemistry, history, mathematics, and English, and the short, light, or weak boys of the same age or year to make all of the poor marks.

Probably the most significant information on this problem comes from two cases of puberty praecox reported by Gesell from the Yale Psycho-Clinic. One girl matured sexually at three and one half years of age. She was tested at the age of four, five, six, and seven years. Although she matured sexually ten years before the average age, her general mental development was normal, her play and social interests were likewise normal for a child of her age, and at the age of seven she showed no special self-consciousness or interest in the opposite sex. She was, however, at the eleven-year level in height, weight, and strength of grip. The other girl, feeble-minded, matured at eight and one-fourth years. She was tested at the Clinic at the age of six, eight, ten, and eleven years. Both cases indicate that "the general course of mental maturation is only slightly perturbed by the precocious onset of pubescence." The accumulating mass of evidence suggests that maturity is specific, not general, and even that physical maturity really may be a series of specific maturities; at least thus far no one physical trait has been found to correlate highly and positively with every other physical trait in case

⁶ *Physical Growth of Children from Birth to Maturity*, p.196.

MODERN VIEWS ON ADOLESCENCE

of individuals of the same chronological age.

What we have said about the relation between mental and physical traits does not belittle the value of physical-education programs or of a careful check of the physical development of all secondary-school pupils. Knowledge of a student's physical development is needed not only for physical-education and health programs, but also for effective educational guidance of adolescents.

Are there any laws or principles of development which summarize the facts of growth and enable us to understand children and adolescents? Are there any modifications of older views which our present information necessitates?

We do not want to bore the reader by dragging out that time-honored, ancient bone of contention of psychological and educational discussions of two or more decades ago—the recapitulation theory, proposed by Haeckel in high-sounding phraseology, "ontogeny recapitulates phylogeny," and warmly championed by G. Stanley Hall and some of his pupils; but the theory seems to be so firmly entrenched in the thinking of so many teachers that we should present briefly a sample of the evidence adduced against it in recent years.

The theory really takes three forms which are often confused. (1) The human embryo in its development passes through the same stages as the race did in its evolution from simpler forms of life. "The individual from conception to senescence follows the order of development of the race." Accordingly, it is assumed (2) that the child must repeat "the typical activities of adults" of the earlier and simpler forms which presumably were his remote ancestors. (3) The child in his development repeats human history, being at one time savage, at another semicivilized, and at another civilized.

The first form has been defended⁷ on embryological grounds, and so we quote from an authority in this field⁸ who, referring to embryo No. 460, Carnegie Collection, says: "Who would claim that our primitive ancestors had more brains than skull? . . . And yet in this embryo the brain is enormous in size as compared with the cartilaginous skull or 'primordial cranium.' Even with the maximum development of the cartilaginous skull the conditions are essentially the same.

"Comparative anatomy shows that in lower mammals and vertebrates the skull is relatively large as compared with the brain, while human ontogeny shows exactly the reverse. The whole assumption that ontogeny repeats phylogeny was based upon the erroneous notions concerning evolution that were prevalent before the present-day conceptions of the germ plasm were introduced. If the various steps in evolution have come about primarily through the modification of the germ plasm, then we would expect changes to appear in the egg and in the subsequent stages of ontogeny, and the entire development would thus be modified as much as the adult. There undoubtedly are fleeting indications of our primitive ancestors in the development of the embryo, but they are not very numerous and are extremely difficult of interpretation.

". . . The series of cartilaginous human skulls with which we are now familiar, modeled from embryos varying in length from 13 to 80 mm., has failed to add much or any additional phylogenetic evidence regarding the form of the skulls of our remote ancestors. In fact, these cartilaginous skulls are as characteristically human as the adult skull is human. It is becoming more and more clear, as our knowledge of the an-

⁷ See G. S. Hall, *Adolescence*, Vol. I; F. E. Bolton, *Principles of Education*.

⁸ W. H. Lewis, professor of physiological anatomy, Johns Hopkins University, in *Contributions to Embryology*, Vol. 9, No. 39 (1920), pp. 301-02.

atomy of the human embryo increases, that both it and its various organs are at all stages as characteristically human as are the adult body and its organs. One can distinguish with ease between the cartilaginous skull of man, and that of the ape, the pig, the cat, the rabbit, or the mole, as each is as characteristically formed as are the adult skulls of the same species."

"Fleeting indications of our primitive ancestors," and, in the case of a human embryo four fifths of an inch long, a "brain enormous in size as compared with the cartilaginous skull or 'primordial cranium,'" are evidence which should make students of psychology and education as cautious about asserting developmental parallels as are the embryologists and physiological and comparative anatomists whose researches are adding new knowledge to this realm of science.

Present psychological thought raises grave questions about the extent and fixity of innate tendencies, questions which must be given serious consideration by all who would understand human nature. We cannot enter into a discussion of these at this time, but may conclude that the teacher will get little understanding of the eager, pulsing life of adolescents from the most painstaking application of developmental parallels; that the fullest account of history will aid him little in securing a sympathetic understanding of teen-age boys and girls with their varied impulses and desires; and that present psychological thought places great stress upon the laws and principles of learning which operate to modify child and adolescent nature to meet the needs of the times.

Is adolescence marked by the birth of a new self? Does the youth normally break with his past as he emerges from childhood and enters the teens? Does sexual maturation imply such cataclysmic "psychic reverberations" that the youth is really a new

person after the reproductive processes mature? Or are there many strong and important threads of continuity in his development from childhood into adolescence? We believe the evidence supports the view of continuity rather than that of abrupt changes. The latter view seems to be due to uncritical observation plus the magnifying effect of certain very important changes to be mentioned presently. In the pubic ceremonies the youth often feigned unconsciousness or was beaten until he fell unconscious. When he regained consciousness the naïve primitive peoples thought he was a new person, his old self being dead or having disappeared in some strange manner. Modern fiction writers have emphasized the view of cataclysmic changes during a short time somewhere in the teens as the result of some highly emotionalized experience. However, close observation of the total personality from the twelfth to the eighteenth years indicates that in many very important respects adolescence means gradual rather than abrupt changes. Sexual maturation does not alter the whole series of behavior patterns, even though it does bring about very important changes. If we find dishonesty, selfishness, lying, stealing, bullying, slovenly thinking, poor English, inaccurate mathematical computations, and originality in spelling at the age of twelve or thirteen, may we reasonably expect that sexual maturation a year or two later will change all these so that the boy at fourteen or fifteen will be honest, unselfish, truthful, treat younger boys fairly, be accurate in thinking and in arithmetical calculations, use good English, and followed accepted modes of spelling? Many modes of response are effective and well fixed before the teens; others need more or less modification. The former persist as relatively permanent traits, whereas the latter are subject to more or less change as need arises during adolescence. Two of the best guar-

MODERN VIEWS ON ADOLESCENCE

antees of desirable personality traits at the close of the teens are (1) the presence of many of them at the beginning of puberty, and (2) desirable, wholesome environment during these years.

Some of the more significant changes normally to be found during adolescence are increased self-assertion, independence, gregariousness, and critical questioning attitude, together with marked alterations due to sexual maturing, such as the secondary sex characteristics and the heterosexual aspects of love.

The self at the close of the teens differs greatly from the self at their beginning, as every observant high-school teacher knows from contacts with thirteen-year-olds and eighteen-year-olds. By emphasizing these changes, the "new-self" doctrine is useful; but the self at eighteen has many things in common with the self at twelve. The "new-self" doctrine, by neglecting important threads of continuity in development of personality, is false and misleading. At any time during adolescence the youth's present has some of its roots deeply imbedded in his past.

Let us now turn our attention to the other topic which we are to consider, the integration of personality traits during adolescence, and ask ourselves three questions. To what extent are the coördinations of personality traits native or unlearned? How do they become integrated? What is the work of the secondary school in furthering suitable integrations?

Native integrations seem to include relatively simple responses to relatively simple situations, and include, of course, those having to do with vegetative and procreative functions. In the very nature of the case, we would not expect them to embrace those more complex (and higher) forms of human behavior which are suited to meet the changing conditions of life. Innate behavior patterns and any of their innate co-

ördinations come out of the past, and any innate changes in them would seem to come from a past that stretches back long enough to allow heredity (variation and selection) to produce them. This means, however, that changed conditions of life will not be met most effectively by behavior patterns which have been developed in accordance with the conditions of a somewhat remote past. Changed conditions of life demand new modifications and coördinations of traits. The vast majority of integrations of complex traits is acquired through training, education—through responses to environmental conditions. The adolescent in the secondary school is in need of many integrations as well as the development of many traits. If he has had good home and elementary-school training, he will have many useful coördinations of traits into larger units of behavior.

In the writer's opinion personality traits become integrated largely in the same way that they develop. They function in a larger unit of behavior as an integral part of it and thus become tied up with its other constituent elements in accordance with the laws of exercise and effect. Integration always takes place in respect to something. It does not occur, like spontaneous combustion, on general principles. It seems highly desirable that significant features of life be the stimuli leading to the coördination of the youth's physical, mental, moral, and other powers. Ideals and purposes may be important factors in the integration of adolescent personality traits. We do not use these terms in a sentimental fashion. They may be found in persons who are very matter-of-fact and hard-boiled. Many persons seem to believe that purposes are uniquely given; that they are entities with an unknown origin and a mysterious past; that they come to us Minerva-like, full-grown, let us say, from the head of a god. The truth of the matter seems to be that

they have a natural history, and that their development follows the same laws and principles of learning as in learning algebra or mastering elementary French. They are responses which are built up as are other patterns of behavior; but they are also stimuli which lead to further activity, and it is in this rôle that they assume so much importance during adolescence. We need to ask ourselves from time to time for a bill of particulars on the development of purposes among those whom we teach. The secondary school has a responsibility for the adolescents who spend from one to six years in attendance upon its activities.

There is an accumulating mass of evidence showing the need of building up powerful, socially useful habits and ideals among adolescents. Wholesome personality, sound mental health seem to be partially dependent upon the youth's having some useful things for which he strives, for which he is willing to sacrifice, and in respect to which he can resolve many of the conflicts which are common to all adolescents. The thoughtful youth with no socially useful motives of conduct may well become depressed and ask himself if life is worth living, because life without strong motives, without objectives that seem worth working for, is insipid indeed.

We must not forget that the youth is fixing behavior patterns and integrating them as he acquires his knowledge and experience of life. He is not quite in the position of an individual buying things in a department store, where the clerk spreads out things before him on the counter, he looks over them, makes his selection, and ends the transaction. Experiences of life are more vital in so many cases, and have profound influence upon the youth. Accordingly, the secondary school has an important task in directing a significant portion of the adolescent's activities along socially and individually useful lines. As some one has said, high-school life may be a mess or it may be a very wholesome thing for the adolescent, depending upon what it does to or for him.

We believe that the secondary school has a very important task to perform, and that teachers should realize the magnitude and value of the objectives they are trying to attain in helping adolescents develop and coordinate personality traits in useful ways through the broad program of school activities and through instruction, guidance, and management which are so effective as to interest and engage each pupil in socially and individually worth-while activities.

AN INTERPRETATION OF RECENT LITERATURE CONCERNING THE PSYCHOLOGY OF ADOLESCENCE

THEOPHIL W. H. IRION

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J. R.

GENERAL CONSIDERATIONS

At the close of the nineteenth century and during the first decade of the twentieth, determined efforts were being made to place education upon a psychological basis. The psychology current at that time did not lend itself very readily to educational applica-

tions, with the result that educators reverted to the earlier attack of Pestalozzi and Froebel. These leaders in the psychological movement in education put an emphasis upon the study of the child. Not having a thoroughly workable psychology, they fell back upon observations of a rather gen-

THE PSYCHOLOGY OF ADOLESCENCE

eral nature as their source of information. These observational methods, somewhat refined and extended and liberally supplemented by questionnaire techniques, were extensively and almost exclusively used throughout the decade from 1900 to 1910.

The child-study movement was gradually enlarged to include the study of adolescence. With the rapid growth of secondary education in the United States, beginning about 1890, there developed definite demands for a thoroughgoing knowledge of the nature of the high-school student. By 1910 the ideas and theories of G. Stanley Hall as expressed in his monumental two-volume work *Adolescence*, and better known as stated in his one-volume work entitled *Youth*, came to be the widely and generally accepted "Psychology of Adolescence."

It is not good form nor good judgment for the present-day psychologist to belittle the work of great educational leaders of the past generation. It is, however, necessary to point out possible weaknesses in their efforts and to indicate lines of necessary research. While Hall made great contributions to the whole movement of child study, yet it is well conceded that many of his theories and psychological assumptions do not stand up under more recent scrutiny. Among these are the theories:

1. That adolescence is comparatively sudden and abrupt in appearance; that growth is saltatory.
2. That the individual in his postnatal mental development recapitulates the early culture stages of the race
3. That early lapses in behavior have an immunizing effect, tending towards future character perfection
4. That adolescence is a period of instability especially with reference to the emotional life.
5. That adolescence is the golden period of religious development

I do not want the reader to believe that

Hall stated these theories so baldly. Much of the criticism heaped upon him is really applicable primarily to the work of his zealous students, admirers, and disciples. Yet around these doctrines was developed a body of information supposedly true and considered useful in the administration of secondary education.

As I review the recent literature concerning adolescence, I find that it is more critical than constructive. In other words, recent writers in this field have devoted much of their time to the combating of the psychology of the first decade of this century. At first, it would seem that such a procedure consists merely of engaging in the arduous task of vigorously fighting straw men. One would hardly be justified in holding the psychology of twenty years ago up to scorn unless it be that it is still widely accepted in educational theory and practice. Somehow, it has become known among many teachers and principals of our high schools that it is no longer good form to subscribe to the psychology of G. Stanley Hall. That in no way prevents them from thinking in terms of a mutilated Hall psychology although they do not recognize it as such. Whether the old psychology still forms the basis of educational thought and practice can not be discovered by asking school people whether or not they accept Hall's fundamental theories.

Keeping these facts in mind, I attempted to determine, if possible, how much of the doubtful psychology of adolescence is still in use. During the last summer I had a group of 142 graduate students working under my direction. This group was constituted as indicated in Table I.

TABLE I
THE NATURE OF THE GROUP OF GRADUATE STUDENTS
FROM WHOM REACTIONS WERE OBTAINED

High-School Principals	High-School Teachers	Super-intendents of Schools	Unclassified	Total
25	59	37	21	142

It is evident from the above that 84 of the 142 students had direct contact with the school work of adolescents. The 37 superintendents had more or less direct contact with such work, making a total of 121 individuals who by all rights should have been informed concerning the psychology of adolescence. The 21 unclassified people were either college or elementary-school teachers, or graduate students who held no teaching positions.

To this group, I submitted the following list of twenty incorrect or doubtful statements growing out of the older psychology. Each individual was then asked to encircle, first the number of each statement which in his judgment is sound and accurate, then to draw a cross mark through the encircled numbers of statements which he considered as of vital significance in conducting the actual work of the high school.

LIST OF INCORRECT OR CONTROVERSIAL STATEMENTS

1. In adolescence, physical growth outruns mental growth. The human being is almost an adult in body and but a child in mind.
2. The adolescent experiences great emotional disturbances. Adolescence is a period of unusual emotional unsettledness.
3. Adolescence is sudden in appearance.
4. Adolescence is a period of great maladjustment.
5. Most psychoses have their origins in adolescence.
6. The adolescent is especially susceptible to religious experiences.
7. Adolescence is a period of unusual physical growth, the rate of growth being far in advance of that of preadolescence.
8. Adolescence is a period of unusual mental growth, the rate of mental growth exceeding that of preadolescence.
9. Never again will the human being experience such mental alertness and keenness as during adolescence.
10. Adolescence is a recapitulation of a culture transition period, marking the shifting from semicivilization to modern civilized life.
11. The moral defects of adolescence are a guarantee against character defects in later life. Early wrongdoing immunizes against later character collapses.
12. Every normal adolescent boy belongs to a gang.

13. Adolescent interests center especially around religion.
14. The reading interests of adolescents are preponderantly about fiction.
15. The personality of the adolescent differs so from that of his childhood years that we may well speak of adolescence as a new birth.
16. Adolescence is a period of unusual lapses of memory.
17. The mental differences between the sexes are greatly augmented during adolescence.
18. It is much more difficult to control adolescents than it is to direct the preadolescent. Therefore, we should make the discipline of adolescents much more rigid and severe.
19. Throughout adolescence, boys lead in physical growth, weight, and maturity, the girls retaining their childhood longer.
20. Adolescence is a period of great mental and spiritual maturing, physical development being slower and of less importance during that period of life.

The reactions of the students can best be comprehended by an examination of Table II.

TABLE II
STUDENTS' OPINIONS REGARDING THE SOUNDNESS AND USEFULNESS OF THE TWENTY STATEMENTS

<i>Number of the Statement</i>	<i>Number of Students Considering It to be sound</i>	<i>Number of Students Considering It as having Practical Significance</i>
1	70	48
2	118	104
3	10	4
4	96	76
5	27	12
6	107	26
7	104	39
8	28	25
9	11	6
10	11	7
11	6	5
12	94	79
13	3	0
14	92	78
15	75	36
16	19	10
17	36	18
18	13	7
19	14	4
20	13	8

An examination of Table II shows that

THE PSYCHOLOGY OF ADOLESCENCE

each one of the twenty statements was considered sound by some students, statement 2 receiving the highest vote of 118, and statement 13 the lowest vote of 3. Statement 2 also received the highest vote for being of greatest practical significance with 104 students checking it thus, while statement 13 received the lowest vote for practical significance, not one student considering it as of practical educational meaning. If we analyze Table II, we will find that eight of the statements receive an approximate vote of 50 per cent, or better, as being sound. The numbers of these statements together with the number of people checking them are given in Table III in rank order of their practical significance as reported by the students engaged in this study. The same statements appear in Table IV as in Table III, however, in a different rank order.

TABLE III

RANK ORDER OF THE HIGHEST EIGHT STATEMENTS
ON THE BASIS OF SOUNDNESS

Number of the Statement	Number of Students Checking it	Rank
2	118	1
6	107	2
7	104	3
4	96	4
12	94	5
14	92	6
15	75	7
1	70	8

TABLE IV

RANK ORDER OF THE HIGHEST EIGHT STATEMENTS
ON THE BASIS OF PRACTICAL SIGNIFICANCE

Number of the Statement	Number of Students Checking it	Rank
2	104	1
12	79	2
14	78	3
4	76	4
1	48	5
7	39	6
15	36	7
6	26	8

The significance of this limited study is that taking a sampling of twenty controversial statements concerning adolescence,

and submitting it to a group of the more progressive high-school teachers, principals, and superintendents of a typical State, every statement is considered as sound by some members of the group. Eight, or 40 per cent, are considered as sound by from approximately 50 to approximately 89 per cent of the group. The reason for considering this group as being made up of individuals of more than ordinary progressiveness is merely the fact that the 142 people here involved were all graduate students who had considerable training in educational work. One might easily conclude that the people with less professional training would be even less discerning in evaluating psychological principles and theories. There is every reason to believe, then, that in writing a psychology of adolescence, it is advisable to discuss at length, old, incorrect, or controversial matters. Of this, no doubt, the various authors of recent books and articles on adolescence were aware, consequently the emphasis, which at first seems unjustifiable.

A second characteristic of recent literature on the psychology of adolescence is that it consists of two parts of general and educational psychology to one part of psychology of adolescence. A chapter on the emotional life of adolescence, covering thirty pages of a book of ordinary textbook size, will treat of the psychology of emotions through approximately twenty pages, devoting the remaining ten to a more or less direct discussion of adolescent emotional life. So it is also with other topics. One is inclined to believe at once that much of the elaboration of topics of a general psychological nature is for the purpose of creating volumes of reasonable size. There being a dearth of accurate material directly bearing on adolescence, the author is easily suspected of using general psychology as a mass-giving padding. The motive on the part of the author is, however, quite another

one. At least it seems so to me. It recently became my duty to deliver a lecture on the difficult topic, "Adolescent Personality." Before I had well begun, it became quite apparent that many definitions and general explanations were necessary, and that I had to define my psychological position with reference to two or three controversial viewpoints. Five years ago, Clark University published *The Psychologies of 1925*. The teacher not specializing in psychology was much surprised to find that there were so many different kinds of psychology. If he hoped for improvements by 1930, he was disappointed. *The Psychologies of 1930*, just published, makes even finer distinctions. In this one volume are discussed or mentioned the following kinds of psychology:

- "Act" Psychology
- Analytical Psychology
- Anthroponomy
- Associationism
- Behaviorism
- Dynamic Psychology
- Factor Psychology
- Functionalism
- Gestalt Psychology
- Hormic Psychology
- Individual Psychology
- Reaction Psychology
- Reflexological Psychology
- Structural Psychology

Under many of these, we find several varieties of psychology, making finer and finer differentiations. We note discussions of a psychology of eclectics, a psychology for psychologists, and of Russian psychologies.

All of this is very bewildering to the average student, who, before taking a first course, had assumed that psychology is psychology. He soon discovers that he must study psychologies, accepting the brand of his professor as true. Now in reading any book on the psychology of adolescence, he most naturally proceeds to interpret the author from the viewpoint of the psychol-

ogy which he has accepted as basically sound. For that reason the author of a text on the psychology of adolescence finds it absolutely necessary to give a brief summary of his psychology with reference to each topic upon which he is reporting. He is not only justified in stating his general psychology, he is compelled to do so in order to be properly understood.

It is, of course, true that the specialist in psychology becomes bored with the pages and pages of apparently superfluous material. He skims through a volume of 450 pages and finds that only about 150 of these are given to a direct, constructive discussion of the psychology of adolescence. What he apparently does not realize is the fact that the recent books on the psychology of adolescence are not written for the psychologist, but rather for the teacher and principal actively engaged in directing the educational efforts of adolescents. Little of the startlingly new and of primary interest to the psychologist alone has been published in the recent literature on adolescence.

ESTABLISHING A NEW POINT OF VIEW

The older psychology of adolescence sought to establish some general psychological theory on the basis of which adolescent behavior could be explained. Such was, for example, the Culture Epochs Theory. Adolescence was described as a thing in itself which determined the behavior, character, indeed, the whole life of youth. If we were to ignore the inadequacy of the research technique employed to establish these notions, and were we to accept a more or less independently functioning factor of adolescence, we would still not be justified in treating it as operating independently or as in a vacuum. Least of all could we agree that because a certain characteristic is thoroughly adolescent, therefore it is good, serviceable, and must be promoted. After all, human

THE PSYCHOLOGY OF ADOLESCENCE

society with all of its very real demands and insistences still exists, and a useful discussion of adolescence must always remain aware of this fact.

The more recent publications on the psychology of adolescence have labored to create a new viewpoint. Nowhere is this more clearly shown than in the splendid essays of Leta S. Hollingworth entitled *The Psychology of the Adolescent* (New York: D. Appleton and Company, 1928).

The point of view usually adopted is that adolescence is not radically different as compared to childhood, nor absolutely at variance with maturity. Quantitatively we might say that adolescence is more than childhood and less than maturity. • None of adolescent characteristics is absolutely peculiar to that period of life alone. Each is more developed or more extensively modified than in childhood and less so than in adulthood. This, then, creates problems of adjustment in the solution of which the adolescent needs guidance. The modern viewpoint is that of understanding the nature of these problems and of determining the best modes of guidance. Taking the risk of appearing tautological, we might • conclude that the older attack was concerned with a study of adolescence in order to create a psychology of that period of human development; the more recent endeavor is that of eliminating a complicated, theoretical psychological structure and of substituting in its stead a body of objectively obtained facts about many adolescent characteristics with a view of both understanding youth's outlook on life and of assisting most effectively in its proper modification.

The two great problems of adolescence, so far as the high school is concerned, are • the problem of self-orientation and the • problem of social orientation. The two are, naturally enough, not absolutely separate and distinct. There is, however, the problem

of learning more about oneself on the one hand and of exploring human society on the other.

In connection with the first of these problems comes the entire matter of sex education. While the sex organs have their long period of gradual maturing, it yet remains true that sex maturity is reached in adolescence. • Sex maturity is the outstanding physical fact of adolescence, and with it come also a great many mental reactions which were noticeable in the preceding years only in a most incipient form. Of course, sex education should begin before adolescence, and during early adolescence it might well be completed. The vexatious thing about sex education is that it should come through the home, where it frequently, though not always, fails. • A second fact is that very few high-school teachers are properly fitted to do this work. Either they lack the proper information, or they overdo the giving of information, or they are morbid in constantly harping on topics of sex, or they are unaesthetic in their handling of the problem. Clumsiness in this matter, resulting in injury to the finer sensibilities of some adolescents while making others perfectly brazen, is excused by the teacher through the use of an over-worked expression, "We must learn to put false modesty aside; we must be perfectly frank and scientific about these matters." • Trouble arises when we put *all* modesty aside and do not know enough to be scientific and aesthetic.

The psychologist is correct in insisting that secondary schools must furnish proper guidance in sex education. Where psychologists are most remiss is in not being more definite about necessary procedures in this work. To give extensive instruction concerning abnormalities of which the majority do not suffer is useless and even harmful. To develop morbid attitudes is reprehensible. To teach adolescents all

that a teacher of adolescents must know is stupid. Present-day adolescents have frequently received excellent childhood instruction and guidance. At any rate, before an extensive program of sex education in a high school is launched upon, we should know more definitely just how much of it is necessary. And again, individual needs in this matter should be considered carefully; what might constitute good instruction for some would undoubtedly be poor instruction for others. Any psychology of adolescence which merely insists, in general terms, upon the necessity of sex education, embellishing its arguments by citing cases of abnormalities without offering sane procedures and setting proper limitations, is, from the angle of the practice of secondary education, valueless. To leave the impression that adolescence is primarily a period of abnormal sex life is incorrect and educationally dangerous.

Finally, it should be noted that most recent writers on adolescence have emphasized the value of rather complete and whole-hearted adoption on the part of high-school students of many forms of activities, especially athletic in nature, as a means of creating substitute activities to sublimate the sex trends. This suggestion holds many practical possibilities.

Again, under self-orientation come numerous other problems of self-finding. What are my abilities, and what is my temperament? In what place and under what conditions am I most effective and serviceable? These problems fall within that much talked of but little worked territory of educational and vocational guidance. That this work must be done in the high school is beyond argument. The high-school graduate who is not intelligent about his own abilities and powers, who has not received some steering into a definite direction leading to a useful and successful life,

has not received much benefit from his high-school education.

We are committed to the doctrine that American high-school education shall not be purely vocational. That does not mean, however, that a high-school student should not form a fairly definite and an intelligent life plan during his secondary-school years. Self-orientation does not mean that the high-school student shall be allowed to dabble around in a great many varieties of exercises, studies, and activities with no critical analysis of his samplings of educational experiences. It does mean that he must be aided in making such analysis of all of his high-school enterprises. It is a vain pedagogical hope which tends to develop faith in the self-finding value of superficial initiations into a host of secondary-school offerings. All of the work of the high-school student must be so analyzed by him as to give him better knowledge of himself and his relations to the rest of the world. This cannot come through a broussing around; it can come only through intelligent assistance of well-trained teachers. When well done, practically all high-school work should have self-revealing value; it should lead to self-finding. Only when we truly know ourselves, when we can distinguish between what we are and what we would like to be, can we make a life plan which is basically valid.

Within the realm of social orientation falls the learning of all facts from history, literature, and the sciences which give to the adolescent a notion of human life and human endeavor. In this part of the work the American high school has probably achieved most. Criticisms made of our secondary education are usually rather general and indiscriminate. The discerning critic objects not so much to what is done as to what is left undone. The notion that orientation implies broad, general, and more or less careless mastery of subject matter is,

THE PSYCHOLOGY OF ADOLESCENCE

of course, fallacious. Orientation must not only be broad but also reasonably accurate. The whole curriculum reconstruction program everywhere in progress with all of its attendant experimentation is an endeavor in the direction of discovering what is the best social orientation and how it can best be achieved. For that reason much less is said, at the present, about various adolescent interests and more about appropriate content for high-school courses. When the psychologist emphasizes the need of social orientation of adolescents in the high school, he means that the selection of subject matter, in making courses of study, must be on the basis of what will give most clearly and most directly the best information about present societary life. Once that material is selected out of the mass of available material, it must be studied quite carefully by the learner. The psychologist does not mean that social orientation can be achieved by taking the most obvious aspects of history, sociology, literature, and the sciences, treating them superficially and generally. Such procedures can lead only to a memorizing of numerous platitudes about the "age of specialization," "the scientific method," "the age of science," "evolution," "division of labor," or whatnot; but the heart of modern human life and the meaning of present human endeavor is not thus revealed.

But, the psychologist points out, in trying to establish a new point of view of adolescence, that orientation in the form of merely gathering facts is not the only problem of adolescence. The adolescent must make actual adjustments to adult human life with all of its traditions and its institutional forms of behavior. Among these adjustments are such as adjustments to economic, political, moral, and religious forms and institutions. Information properly correlated can become the most potent tool for proper adjustment; information not so correlated

is generally not recognized by the youth; as of significance in his practical endeavors. He speaks of school learning as theoretical, and of learning on the streets and in the shops and places of business as practical. To bring the school learning to the adolescent in a more usable form, the psychologist has found it advisable to inform teachers and parents about the adjustment problems of adolescence. It is a strange fact, that just because we have lived through adolescence does not guarantee that we understand it, or for that matter any earlier period of life. We always tend to misinterpret earlier periods of our own lives. We either exaggerate the good old days and belittle the present, or we ridicule and make a caricature of our childhood life and experiences. Just because later in life we learn to evaluate things and events more adequately does not mean that the evaluations of adolescents can be ignored or made light of. The adolescent feels quite ardently about his own evaluations and the corresponding adjustments which he is endeavoring to make.

One of the adjustment problems of adolescence quite generally ignored is the problem of becoming an independent creature; getting away from home authority without losing all respect for authority, freeing himself from parental control without losing admiration and affection for parents. Or, again, the problem may be, to put it negatively, how to grow up and not be constantly dependent on home and parental guidance. Daily the directors of psychological clinics come in contact with cases of overdependence on home and parents. Such cases are instances of severe maladjustment.

Now, when the psychologist points out these facts, the high-school teacher is apt to make the big mistake of arguing for complete independence of youth on the one hand, and for entire relaxation of authority

of parents on the other. If this advice is followed by both parties, the result will be total emancipation of only partly educated, extremely inexperienced youth. We have seen the outcome as none too good. We have here the situation of psychological information being clumsily and ruthlessly applied.

How to become economically independent is another adjustment problem of adolescence. This problem has attracted the attention of educators of recent decades and much has been said about vocational education and practical education. The matter is so widely discussed and written about that a few comments in this short article could add nothing of value. The only interpretation which should be made here of the psychologist's viewpoint is that all endeavors to assist the adolescent in this matter must be truly educational. A mere apprenticeship in some trade does not fulfill the needs of adolescents in this connection.

Twenty years ago religion was made a major adjustment problem of adolescence. Of recent years, that seems not to have been emphasized. Presumably it becomes more of a problem in adolescence than before, because adults begin to insist that the adolescent shall make religious adjustments, join a church, make a public confession of his faith. The older psychology attempted to show that there was a religious instinct which reached maturity during the teens.

To summarize: The more recent books on the psychology of adolescence have emphasized the problems of adolescence and the resulting necessary guidance. This contrasts strikingly with the older psychology which endeavored to make adolescents differ psychically from preadolescents and adults by virtue of adolescence alone. The modern psychologist has therefore offered an abundance of useful material. He has not been careful enough in interpreting his

material so as to ensure that the ordinary practitioner in secondary education will apply the facts properly.

APPLYING THE PSYCHOLOGY OF ADOLESCENCE

When we take any so-called adolescent mental trait, and attempt to measure it carefully, we discover that the range of difference between adolescents in the possession of this characteristic is as great or greater than the difference between adolescents and preadolescents on the one hand, and adolescents and matured people on the other. That fact ought to make us very cautious in trying to apply indiscriminately the facts of the psychology of adolescents to youths in high schools. So-called generalities in this division of psychology are generally based upon central tendencies of many measures or observations. But such averages are of little value without their accompanying variabilities. It is a psychology of individual differences in adolescence which is greatly needed. Brooks¹ in his recent book shows this need exceedingly well.

Another mode of applying the psychology of adolescence has been the endeavor to give a general picture of adolescence. This is generally found in the later chapters of the new publications under the title, "Adolescent Personality." Brooks, referred to above, devotes four chapters to this project. While one gains the impression that the earlier chapters in this book are more masterly and exact than the later discussion, yet the author is to be commended for making the effort to show what the total aspect of adolescence is when viewed from the many possible integrations which youth can form. And the result is not valueless. To speak of isolated traits never presents the creature to be educated as a real, living human being. Brooks and others devote at least one chapter to the discussion of ado-

¹ Fowler D. Brooks, *The Psychology of Adolescence* (Boston: Houghton Mifflin Company, 1929).

A NEW METHOD OF STUDYING PHYSICAL GROWTH

lescent personality disturbances. While such a chapter is valuable, its usefulness has probably been exaggerated. The average high-school teacher is thoroughly fascinated with precisely this discussion. Abnormalities are then discovered by him in almost all of his pupils. A clearer picture of nor-

mal adolescence is of much greater service.

In this brief discussion, I have endeavored to bring before the reader a concise statement of the general trend of thought and discussion in the recent writings on adolescence and to offer some practical interpretations.

A NEW METHOD OF STUDYING PHYSICAL GROWTH

D. E. ZOOK

EDITOR'S NOTE: *Although serious students are vigorously attacking the problems of adolescence their progress has been retarded by the lack of adequate techniques. In devising the method herein described Mr. Zook, who holds the degree of doctor of philosophy from the University of Chicago, has made a significant contribution to the methods of research in this field.*
J. R.

As far back as the days of the great artists and sculptors of ancient Greece the proportional size of the various parts of the human body for children of various ages and for adults of both sexes had been determined by making direct measurements upon the most perfect subjects available. About the middle of the eighteenth century Robertson and Wilkinson had determined the specific gravity of the whole body by using air bladders and cork to buoy up the body in water, and their work had resulted in the introduction of the cork life preservers for sailors. Near the end of the nineteenth century Dr. Godin made an extensive study of the growth of the segments of the body in terms of length for various ages and calculated the volume of the cranium and trunk as if they were rectangular solids. During the World War, Dr. Bean determined the volume and weight of artificial limbs by submerging the corresponding whole limb and measuring the water displaced. About 1915 Dr. Pirquet devised a formula for body volume to be used in his nutrition index, as follows: "Body volume is equal to the cube of the sitting height divided by ten." About ten years later, Dr. Mumford devised another formula for body volume to be used in determining the specific gravity of the whole body, as follows: "Body volume is equal

to that of a cylinder whose diameter is the mean of the width and depth of chest and whose altitude is equal to the height of the body." From the early part of the present century Baldwin and others have weighed and made detailed measurement of thousands of children from birth to maturity. Especially since the World War has the health program been brought into our schools and each succeeding year more and more children are weighed and measured and classified as overweight or underweight, notwithstanding the fact that many children who are not in the group, which is not more than ten per cent or even twenty per cent above or below the average, are in perfect health.

Up to the present time the study of the size and growth of the human body has been limited to the determination of the height and weight of the body as a whole and to the length and girth of the various segments. It is evident that since the body and its segments are three dimensional that the determination of their volume at the various ages would be the proper method of showing size and growth. Progress in the field of measurements, and especially in the study of physical growth, is dependent upon the precision of the measuring devices used and the ease with which they can be used effectively. If we wish to know

how the body grows we must know how each of the segments grow, not in length alone but in volume. If we know the exact volume of the head or the hand at five and six years we can see how much the head or hand has grown between the ages of five and six.

Physical growth presents two aspects, the external and the internal. The external aspect is recognized as increase in size or volume. The internal aspect is recognized as the many vital changes taking place within the body, such as the increase in the size of the heart and arteries and the percentage of muscle and bone. The present study deals directly with the external aspect of growth but since size of the segments are dependent upon the more vital changes taking place within, it is believed that this method can be used to determine or predict these internal changes.

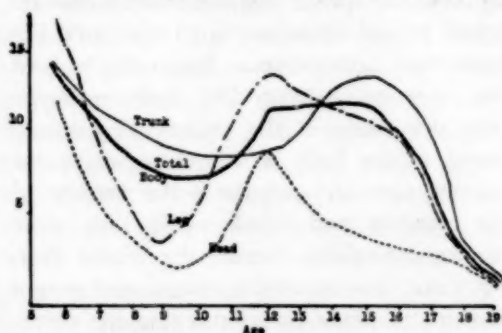
This report is an account of a method of direct measurement of the volume of the whole body and its various segments by means of water displacement. The measurements were made by gradually lowering the subject into a large tank filled with water. As each segment was submerged the overflow was discharged into a small tube. A float in the tube caused a pen to record upon a large graph both the length and the volume of the segment. The length of time required for making a complete measurement is about eight minutes.

Since it was impossible to follow one individual or many individuals through their entire period of growth in a year's time, measurements were made upon 163 boys from five to nineteen years of age. The average size of each segment for each age group was computed and from these averages growth norms for each of the various segments were set up. It can be readily seen that the method will have its greatest value in following individuals through their entire period of growth.

Two groups of boys very unlike in physical development were measured. One group of ninety-four boys was from the University laboratory schools while the other group of sixty-nine boys was from the University Settlement in the stockyards district. The measurements of these groups were compared to show the effect of proper food and care upon the various parts of the body. It was found that the average size of the cranium and the feet in the group from the University Settlement was the same age for age as that in the group from the laboratory schools. The most marked differences between the two groups were found in the trunk, especially in the chest. Here the average volume for the settlement group was only about 70 per cent of that of the laboratory-school group.

The facts with regard to the volume of the whole body and its various segments are as follows:

The volume of the whole body increases from 1,160 cubic inches at five years to 3,780 cubic inches at nineteen. Between five and six years the body increases 13



Relative Rate of Growth of Total Body and the Three Major Segments: Heads, Trunk, and Legs.

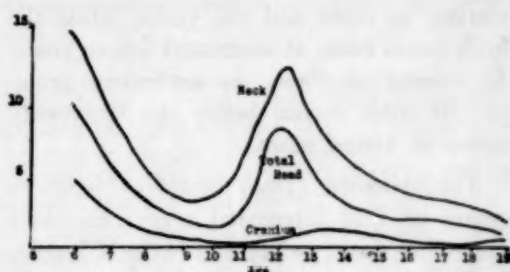
per cent. This rate of increase declines to 8 per cent at eleven years, and then rises to 11 per cent at twelve years, where it remains until after sixteen years. It then rapidly declines to 2 per cent at nineteen years. The settlement group is much below the University group in volume of the whole body. At fifteen years the mean dif-

A NEW METHOD OF STUDYING PHYSICAL GROWTH

ference is about 500 cubic inches or 20 per cent. The formula of Pirquet was found to yield results consistently about 20 per cent too high, while the formula of Mumford was found to approximate the mean more closely, but was more erratic, being now high and now low. The mean specific gravity of the whole body was found to increase from 1.0 at five to about 1.04 at nineteen years. This is probably due to the greater percentage of bone and the greater percentage of mineral matter in the bone at the higher ages. It was found that when the body is measured in water it is generally longer than when measured in air. It appears that the measurement in water will give the maximum length of the body at any time of the day or after any amount of exercise. The variation in the measurement of height in air and in water varied from 0 to 1.5 inches depending upon the time of day and the amount of exercise taken by the subject.

The volume of the total head and neck (from sternal crest to top of head) increases from 210 cubic inches at five to about 400 cubic inches at nineteen years. In per cent of total body, the head and neck decreases from 18 per cent at five to 11 per cent at nineteen years. This segment increases about 12 per cent between five and six years. The rate drops rapidly to 2 per cent between eight and ten years and then increases to about 9 per cent at twelve years and then declines gradually to 1.3 per cent at nineteen years. In volume of the total head and neck, the settlement group is about 20 cubic inches below the other group from twelve to fifteen years.

The cranium (from center of auditory canal to top of head) increases from 147 cubic inches at five to 180 cubic inches at nineteen years. In per cent of total body, it increases from 13 per cent at five to 4.8 per cent at nineteen years. This rate drops to .6 per cent at ten years, then increases



Relative Rate of Growth of the Total Head and Its Two Segments: the Neck and Cranium.

to about 2 per cent at fourteen years, then rapidly decreases to zero by seventeen years. In volume of the cranium the two groups show no marked differences.

The neck segment (from sternal crest to center of auditory canal) increases from about 60 cubic inches at five to 220 cubic inches at nineteen years. In per cent of total body, it remains almost constant around 6 per cent. In rate of growth the neck drops from 20 per cent at five to 4 per cent at ten years, then rises rapidly to nearly 20 per cent at twelve years, and then declines rapidly to 2 per cent at nineteen years. In volume of the neck, the settlement group is about 20 cubic inches below the University group from twelve to fifteen years.

The total trunk (from crotch to sternal crest) increases from about 500 cubic inches at five to 2,000 cubic inches at nineteen. In per cent of total body, it increases from 44 per cent to 52 per cent. In rate of growth it is lowest at eleven years, and increases to about 14 per cent at fifteen years. The greatest difference between the two groups is found in the trunk. At fifteen years this difference is about 300 cubic inches.

The chest (from center of fifth intercostal space to sternal crest) increases from 150 cubic inches at five to 640 cubic inches at nineteen years. In per cent of total volume the chest varies from 13 per cent at the early ages to about 18 per cent at the ages from sixteen to nineteen years. In rate of growth, the chest is erratic, the low points

coming at eight and ten years, while the high points come at seven and fifteen years. In volume of chest, the settlement group is 170 cubic inches below the University group at fifteen years.

The abdomen (from center of navel to center of fifth intercostal space) increases from 160 cubic inches at five to 655 cubic inches at nineteen years. In per cent of total volume it varies from 14 per cent at the lower ages to 17 per cent at the higher ages. In rate of growth, it drops from 18 per cent at five years to 10 per cent at ten years, where it remains until seventeen years, when it increases to 15 per cent and then suddenly drops to 1 per cent at nineteen years. The settlement group is 75 cubic inches below the University group at fifteen years.

The loin (from crotch to center of navel) increases from 200 cubic inches at five to 665 cubic inches at nineteen years. In per cent of total volume the loin is 17 per cent both at five and nineteen years. Between these ages it varies as low as 14 per cent. The rate of increase is about 3 per cent at five years, rising to 12 per cent at nine years, and then dropping to 7 per cent at twelve years. It then increases to 15 per cent at fifteen years, and remains above 12 per cent until eighteen years. The settlement group is 100 cubic inches below the University group at fifteen years.

The total leg (from sole of foot to crotch) increases from 440 cubic inches at five years to 1,420 cubic inches at nineteen years. In per cent of total volume it is rather constant around 39 per cent. In rate of increase it is 17 per cent at five, decreasing to 3 per cent at nine, then rising to 14 per cent at twelve years, and remaining above 10 per cent until after sixteen years when it drops rapidly to about 1 per cent at nineteen years. The settlement group is about 80 cubic inches below the University group at fifteen years.

The thigh (from knee to crotch) increases from 285 cubic inches at five to 1,025 cubic inches at nineteen years. In per cent of total volume it varies from 24 per cent at five years to 27 per cent at nineteen years. The rate of increase is above 20 per cent at five years, decreasing to 1 per cent at nine, then rising to 16 per cent at twelve years, remaining near 12 per cent until after sixteen years, when it rapidly declines to 2 per cent at nineteen years. The settlement group is about 80 cubic inches below the University group at sixteen years.

The calf (from ankle to knee) increases from 125 cubic inches at five to 305 cubic inches at nineteen years. In per cent of total volume, it decreases from 10 per cent at five to 8 per cent at nineteen years. In rate of increase, the low point of 4 per cent comes at 8 years, increasing to 13 per cent at twelve years, and declining gradually to zero at about seventeen years. The settlement group is about 50 cubic inches below the University group at fifteen years.

The foot (from sole to ankle) increases from 30 cubic inches at five to 90 cubic inches at nineteen years. In per cent of total volume, it remains close to 3 per cent. The highest per cent is found at twelve and the lowest at five and nineteen years. The rate of growth drops from 17 per cent at five to 0 at eighteen years. In volume of the foot the two groups are about equal.

This study is significant in that it opens up an entirely new field by presenting a new and more refined method of studying physical growth. It makes possible the location of lags and spurts in growth for each of the segments in an individual or for a whole group. The method is of unquestionable value as a research device and may be of great value in school health work and other fields of education, such as swimming instruction. The study is also significant in that it shows the invalidity of formulae for body volume. Since this method gives the exact body volume any further

A NEW METHOD OF STUDYING PHYSICAL GROWTH

MEAN VOLUME OF BODY AND SEGMENTS IN CUBIC INCHES DERIVED FROM MEASUREMENTS OF 163 BOYS

Segment	Age															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Cranium.....	147	155	159	162	163	164	167	169	172	176	178	179	179	180	180	
Neck.....	63	80	91	98	102	106	118	141	158	169	182	191	201	215	220	
Total Head ¹	210	235	250	260	265	270	285	310	330	345	360	370	380	395	400	
Chest.....	150	175	220	230	280	310	330	360	400	460	530	600	630	635	640	
Abdomen.....	162	191	231	258	280	310	337	372	407	445	498	555	630	650	655	
Loin.....	198	204	209	232	260	285	308	328	363	410	472	535	600	640	665	
Trunk ²	510	570	660	720	820	905	975	1060	1170	1315	1500	1690	1860	1925	1960	
Thigh.....	285	350	385	429	432	448	485	562	637	710	805	900	967	1005	1025	
Calf.....	125	130	135	141	153	167	189	212	232	254	274	294	304	305	305	
Foot.....	30	35	40	45	50	55	61	66	71	76	81	86	89	90	90	
Total Leg ³	440	515	560	615	635	670	735	840	940	1040	1160	1280	1360	1400	1420	
Total Body.....	1160	1320	1470	1595	1720	1845	1995	2210	2440	2700	3020	3340	3600	3720	3780	

¹ Total head is sum of cranium and neck. ² Trunk is sum of chest, abdomen, and loin.³ Total leg is sum of thigh, calf, and foot.

need of a formula is eliminated. The method gives the specific gravity of the whole body which should be of value to swimming instructor. The method also pointed out the maximum height of the body, and how it may be obtained at any time of day or after any amount of exercise.

An apparatus somewhat similar to the one used in this study has been designed by the writer which will give the specific gravity of any segment. With the two measure-

ments, that of volume and the specific gravity of a segment, it will be possible to determine the weight of any segment of the body.

Certain it is that this method is able to give much detailed knowledge of how the body grows, which was not obtainable by use of former methods. In the end, the value of the method will lie in the application of this detailed knowledge of health work and the problems of education.

MEAN VOLUME OF BODY AND SEGMENTS IN PER CENT OF TOTAL VOLUME DERIVED FROM MEASUREMENTS OF 163 BOYS

Segment	Age															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Cranium.....	12.7	11.7	10.8	10.2	9.5	8.9	8.4	7.6	7.0	6.5	5.9	5.4	5.0	4.8	4.8	
Neck.....	5.4	6.1	6.2	6.1	5.9	5.7	5.9	6.4	6.4	6.3	6.0	5.7	5.6	5.8	5.8	
Head.....	18.1	17.8	17.0	16.3	15.4	14.6	14.3	14.0	13.4	12.8	11.9	11.1	10.6	10.6	10.6	
Chest.....	12.9	13.3	15.0	14.4	16.3	16.8	16.5	16.3	16.4	17.0	17.6	18.0	17.5	17.1	16.9	
Abdomen.....	14.0	14.4	15.7	16.2	16.3	16.8	16.9	16.8	16.7	16.5	16.5	16.6	17.5	17.5	17.3	
Loin.....	17.1	15.5	14.2	14.5	15.1	15.4	15.4	14.8	14.9	15.2	15.6	16.0	16.7	17.2	17.6	
Trunk.....	44.0	43.2	44.9	45.1	47.7	49.0	48.9	48.0	48.0	48.7	49.7	50.6	51.7	51.7	51.8	
Thigh.....	24.5	26.5	26.2	26.9	25.1	24.4	24.3	25.4	26.1	26.3	26.6	26.9	26.9	27.0	27.1	
Calf.....	10.8	9.8	9.2	8.8	8.9	9.0	9.5	9.6	9.5	9.4	9.1	8.8	8.4	8.2	8.1	
Foot.....	2.6	2.7	2.7	2.8	2.9	3.0	3.0	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.4	
Leg.....	37.9	39.0	38.1	38.6	36.9	36.4	36.8	38.0	38.5	38.5	38.4	38.3	37.8	37.6	37.6	

JUNIOR-SENIOR HIGH SCHOOL CLEARING HOUSE

INCREASE OF BODY AND SEGMENTS IN PER CENT OF VOLUME THE PRECEDING YEAR AS DETERMINED FROM MEASUREMENTS OF 163 BOYS

Segment	Age														
	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Cranium.....	5.4	2.6	1.9	0.5	0.6	1.8	1.2	1.8	2.3	1.1	0.6	0.0	0.6	0	
Neck.....	20.7	13.8	7.7	4.1	3.9	11.3	19.5	12.1	7.0	7.7	4.9	5.2	7.0	2.3	
Head.....	11.9	6.4	4.0	1.9	1.9	5.6	8.8	6.5	4.5	4.3	2.8	4.0	2.6	1.3	
Chest.....	16.7	25.7	4.5	21.7	10.7	6.5	9.1	11.1	15.0	15.3	13.2	5.0	0.8	0.8	
Abdomen.....	17.9	20.9	11.6	8.5	10.7	8.7	10.4	9.4	9.3	11.9	11.4	15.3	3.1	0.8	
Loin.....	3.0	2.5	11.0	12.1	9.6	8.1	6.5	10.7	12.9	15.1	13.3	12.1	6.7	3.9	
Trunk.....	11.8	15.8	9.1	13.9	10.4	7.7	8.7	10.4	12.4	14.1	12.7	10.7	3.5	1.8	
Thigh.....	22.8	10.0	11.4	0.7	3.7	8.3	15.9	13.3	11.5	13.4	11.8	7.4	3.9	2.0	
Calf.....	4.0	3.8	4.4	8.5	9.2	13.3	12.2	9.4	9.5	7.9	7.3	3.4	0.3	0	
Foot.....	16.7	14.3	12.5	11.1	10.0	10.9	8.2	7.6	7.0	6.6	6.2	3.5	1.1	0	
Leg.....	17.0	8.7	9.8	3.3	5.5	9.7	14.3	11.9	10.6	11.5	10.3	6.3	2.9	1.4	
Body.....	13.8	11.4	8.8	7.8	7.3	8.1	10.8	10.4	10.7	11.9	10.6	7.8	3.3	1.6	

THE CONTRIBUTION OF GUIDANCE IN THE PROBLEMS OF ADOLESCENTS

ARTHUR J. JONES

EDITOR'S NOTE: By his investigations, his writings, his work on the National Committee in Research in Secondary Education, and his special study of the field of guidance Mr. Jones has clearly earned the right to be heard on the problems presented in this article. His latest book entitled *Principles of Guidance* has attracted much favorable comment. Mr. Jones holds the position of professor of secondary education, School of Education, University of Pennsylvania.

J. R.

Any helpful discussion of the way in which guidance contributes or may contribute to the solution of the problems of adolescents should begin with a definition of the terms used or at least with a statement of the field to be covered. This is all the more necessary because of the varying interpretations of adolescence and of guidance. This article will accordingly naturally divide itself into four parts: (1) Who and what are adolescents? (2) what are their problems? (3) what is guidance? (4) how may guidance contribute in the problems of adolescents?

1. Who and What are Adolescents?

The series of articles in this number of the CLEARING HOUSE should serve as an adequate answer to this question, at least as adequate an answer as can be given with

our present incomplete knowledge of the subject. In general, adolescents are young people who are undergoing certain physiological and anatomical changes that lead up to and result in maturity of bodily structure and function. All studies of adolescence clearly show the great variability among individuals in the beginning of this period, in its ending, and in the length of time covered by the period. For some, maturity begins as early as the tenth year, while some have not completed their maturation at eighteen years. The usual statement is that the period of adolescence extends from about ten or ten and one-half to eighteen years. Unfortunately this is too often taken to mean that all children between ten and eighteen are adolescents. This is obviously not true. A thirteen-year-old girl may be immature, she may be ma-

CONTRIBUTION OF GUIDANCE IN PROBLEMS OF ADOLESCENTS

turing, or even mature. For any individual, the length of time consumed in passing through the period also varies from one and one-half years to four, but practically never does it take six years.

This variability in the time of beginning of adolescence and the length of time it takes to complete the period makes our problem very difficult. Studies have shown that in practically every school grade will be found children in all three stages of maturation—immature, maturing, and mature. Even in the seventh grade at least half the students have not yet begun the period of maturation.

Even the usual statement regarding the earlier maturing of girls as compared with boys loses much of its significance when we realize that two thirds or three fourths of the boys begin the period of maturation before some girls and that a large proportion of the girls begin the period later than some boys. If it were possible to be content with the usual statements regarding adolescents, our problem would be very much simplified. Such statements as these would, if they were true, materially assist us: "Girls mature from one to one and one-half years earlier than boys," "Children between the ages of ten and eighteen are adolescents," "The junior and senior high school is the period of adolescence." But, as we have already said, these statements are very misleading, or to put it more bluntly, they are not true. If we are to deal with adolescents, we must deal with adolescents themselves and not merely with groups of young people, some of whom or even most of whom may be adolescents. It is, then, like everything else in education, a question of dealing with individuals, not with groups more or less heterogeneous.

2. What Are the Problems of Adolescents?

This question is still more difficult to answer. Much of the material in this number

of the CLEARING HOUSE is an attempt to answer it. The chief difficulty lies in the impossibility of distinguishing between problems that are due to the process of maturation directly and those that are due in large measure to such things as number of years one has lived, the experiences one has passed through, the associations with different people, grade in school attained, mental ability as such, health, nationality, and many other things. To what extent are the problems of an immature thirteen-year-old boy in the seventh grade like those of a thirteen-year-old maturing boy in the fourth grade? Does the immature girl of twelve with an I.Q. of 130 in the ninth grade have the same problems as the mature girl of twelve with an I.Q. of 80 in the fifth grade? Unfortunately we have very little authentic data upon which to rely for answers to these questions. Most of the statements current in books and magazine articles rely upon data founded upon doubtful methods of investigation, upon "introspection" of adults who try to remember what happened to them and what they thought and felt in the years gone by, and upon impressions gained from the "observation" of young people in school. It is significant that such scientific studies as those of Baldwin, Leal,¹ and others throw considerable doubt upon the accuracy of the traditional statements. It seems fairly certain that many of the so-called "characteristics" of adolescents are found in immature children and not found in some adolescents, that some are due to home influences, to mental ability, to grade in school, to sex, and other factors.

What shall we say then, are the problems of adolescents? If we were to stick closely to the facts as demonstrated, we would need to confine our attention to prob-

¹ B. T. Baldwin, *The Physical Growth of Children from Birth to Maturity*, University of Iowa Studies in Child Welfare, I, 1, 1921. Mary A. Leal, *Physiological Maturity in Relation to Certain Characteristics of Boys and Girls* (Philadelphia: The University of Pennsylvania Press, 1929).

lems due more or less directly to the phenomena accompanying physiological and anatomical maturation. These would deal with problems growing out of the rapid increase in height and weight, the increase in bodily power, changes in circulation, in heart action, sensations due to maturing of sex organs and experiences growing out of these sensations, changes in attitude of associates due to stature, strength, voice, etc. With these would come increasing inhibitions, especially for girls, change in form of discipline in home and school, greater freedom of action and of thought. (However, change in discipline and in freedom of thought and action are seldom found unless the child is in the higher grades of the school.) Problems related to leaving school, to choice of schools and of courses, to occupational choice are at least only partly due to physiological maturation and sometimes not at all related to it.

This brings us face to face with a difficult dilemma. Shall we confine ourselves in this discussion to problems that clearly and demonstrably arise from physiological maturation, or must we attempt to cover the whole field of guidance? Obviously, the latter is impossible within the confines of this article. To take the other horn of the dilemma would be to restrict the discussion too narrowly. The only course left is that of the "middle-of-the-roader," and this is never satisfactory. Without attempting any adequate defense of the position taken, we shall select for discussion certain problems that seem to be vital in the lives of young people and that are more or less closely related to the period of maturation though not necessarily absolutely dependent upon it.

These problems for the most part center around increase in height and weight, changes in muscular coordinations, increase in physical power, and maturation of sexual function with primary and secondary sex

characteristics. They are problems that have to do with adjustment to school, with choices of companions and school activities, with attitudes towards and adjustments to members of the opposite sex, with situations in school and out of school arising from associations with other people, and with life problems due to approaching maturity.

3. *What Is Guidance?*

Out of the haze that has surrounded the field of guidance for the past thirty years, there is gradually emerging a more or less clear idea of the meaning of the term and of the scope of the problem. Guidance, as at present understood, is the assistance given to an individual in the solution of a difficult problem that confronts him. A crisis occurs in the life of the person; he is not able without help to meet this crisis successfully or intelligently; he needs assistance. Guidance is the assistance rendered. The necessity for guidance is based first upon the inability of individuals, especially young people, to meet these crises successfully, to solve these problems, without help. It is also based (1) upon the fundamental principle that the good of society demands that each individual perform efficiently his proper function and (2) upon its correlate that each individual is entitled to secure his own highest development. Neither of these functions can be achieved unless the crises that occur in the lives of individuals are successfully met.

Guidance does not imply solving an individual's problems for him; its primary purpose is rather to give him such help as will make it possible for him to solve his own problems and to so train him that he can in an ever-increasing degree solve his problems without assistance. The chief means used in assisting the individual are supplying necessary facts and helping him to get facts for himself, counseling or guiding his

CONTRIBUTION OF GUIDANCE IN PROBLEMS OF ADOLESCENCE —

thinking about his problem, and building up habits, attitudes, and ideals, and developing techniques that will aid in the solution of the problems.

It is increasingly evident that every part of the school organization must contribute to the guidance of the students. The principal, the supervisors, the classroom teachers, the classroom, the playground, the school life, the clubs, and the lunch room all have their part to play in the work of guidance. One of the largest problems facing guidance in our schools is that of utilizing and coordinating all of the forces of the school that may contribute to the guidance of the students. It is also becoming very clear that this work cannot be accomplished unless we have, in addition to the usual machinery and personnel of the school, experts who shall take charge of and direct the guidance activities. Securing and assembling accurate information involves techniques and specialized training not possible for the usual principal or classroom teacher; counseling is in itself a very difficult and specialized activity. Many excellent teachers do not have the personal and professional qualifications for counseling. The problem of coordination of the forces of the school takes infinite patience and tact and far more time than any classroom teacher can devote to it. It is not far from the truth to say that the success of guidance, its development, its very life depends upon specially qualified and trained workers by whatever name they may be called—counselors, visiting teachers, advisers, or deans.

Guidance is a function inherent in education, it is an essential part of classroom technique, but it is more than this; it involves the entire organization of the school and necessitates focusing all the forces of the school upon the problems arising in the life of each individual. It is, of course, an individual process; there is something

so intimate, so personal about it that it cannot be carried on except as the life of each individual pupil is touched by the lives of other individuals—teachers, counselors, principals, deans.

4. *How May Guidance Contribute in the Problems of Adolescents?*

Probably the best way to answer this question would be to present a series of cases involving adolescent problems and describe how guidance helps in their solution. But to do this would involve stretching the boundaries of this article far beyond its desirable limits. In the space allotted we can only present bare outlines of the topic and merely suggest the general lines of contribution.

In the first place, guidance contributes to the solution of these problems because it always deals with individuals. The problems of adolescents are peculiarly individual problems even though many may have similar problems. Guidance focuses its attention upon the individual and attempts to help him; it does not deal merely with groups or classes; it is never satisfied with a procedure that attempts to solve the problems common to a majority of the class, useful as this may be; it concerns itself with each individual.

Guidance contributes to the problems of adolescents by developing or attempting to develop a scientific attitude towards these problems on the part of both teachers and the adolescents themselves. This scientific attitude emphasizes fact finding as a fundamental basis for the solution of problems. The teacher or counselor who has this attitude will never be content with mere opinion, even of experts, when facts may be secured; he will set up the machinery by which facts may be secured—facts regarding the pupil, facts regarding occupations, schools, and courses—and advice and counsel will be deferred, when possible, until the

facts are secured. No solution of a problem is valid unless based upon facts, and no counselor can be a reliable guide to youth unless he has developed a technique by which facts may be secured. It is, of course, not usually possible to obtain all facts before counsel is given, not even all essential facts; the necessity for action is often immediate; decision must be made with the material at hand. However, the attitude of the scientifically minded counselor is radically different from that of the "cocksure" adviser. The scientific counselor sifts all the evidence at his disposal and utilizes the best and most reliable data at hand; he is not influenced by prejudice or by preconceptions; nor does he regard the solution as more than a "best guess" and, when possible, makes provision for revision of the solution arrived at.

Valuable as the scientific attitude is for the counselor and the teacher, it is far more important for the adolescent himself. Because he is close to the time when final or nearly final choices must be made regarding schools and colleges, occupations, and careers, it is very important that he develop the attitude that will demand facts and that will influence him to delay decision until the necessary facts are secured. He should be trained in techniques of securing facts, and in various methods of analysis of these facts. He must be so trained that he will be able to secure the necessary facts for himself and be willing to make his own decisions. The development of self-reliance and independence should be a part of the program of every grade in school for every child, but it reaches its climax in the adolescent. This is, so to speak, the last chance of the school; it must be utilized.

This scientific attitude is especially important because we have so little entirely reliable data regarding the characteristics of adolescents. The scientifically minded

counselor will, of course, prepare himself for his duties by a careful study of the most reliable sources on adolescence, but if he is wise he will not be governed by the general conclusions usually accepted; he will focus his attention upon the adolescents themselves and not upon theories regarding them; he will meet the problems as they arise, even though these problems may not be described in textbooks on adolescence or in impassioned addresses of over-enthusiastic "inspirational" institute lecturers. It is quite easy to become enthusiastic or even pessimistic when dealing with the problems of adolescents; however, what is needed more than anything else is calm, clear vision, sympathetic understanding based upon facts, and intelligent counsel.

Possibly the most vital part of the guidance program for the adolescent is that which is related to his school and social adjustments. The rapidity of growth in height and weight, inequalities in growth of various parts of the body, the rise of new sensations and emotions due to approaching sex maturity, the approximation to the status of the adult and the ability to earn the wages of an adult, the enlarging view caused by or coincident with the study of world problems in school—all these call for readjustments that often are beyond the power of the adolescent to make without help. Guidance is contributing to the solution of these problems of adjustment in many ways. Counselors are gathering together data showing clearly the great number of maladjustments and analyzing their causes. Many of these cases go back to home conditions; when these are remedied the maladjustment disappears. Some are due to physical conditions and emotional disturbances. Physicians, psychiatrists, and psychologists are called upon to secure the basic facts underlying these conditions and to help in making the readjustments necessary.

CONTRIBUTION OF GUIDANCE IN PROBLEMS OF ADOLESCENTS—

The judicious use by the counselor of information regarding home conditions has often been the means of changing the attitude of a teacher towards a student and removing, or at least improving, a very delicate situation. Awkwardness, shyness, reticence, due to lack of muscular coordination, are frequently causes of difficulty. Guidance assists in overcoming these difficulties by a knowledge of the causes and by the development of methods calculated to reestablish the coordinations lost through the period of rapid and unequal growth. Counselors are utilizing more and more the regular social activities of the school in assisting the adolescent to find himself and to overcome the awkwardness and lack of poise incident to this particular period of development. Problems that arise in the association of boys and girls in the same classes and in general school life are utilized to develop attitudes and to gather facts helpful in the adjustment of boys and girls in school and of men and women in later life. These adjustments are distinctly guidance problems.

Occupational and school choices, characteristic of this period not merely because it is the adolescent period, but because of the place in school attained and because of the attendance laws and labor laws, are assisted materially by guidance. The method is the same in this field as in those already described. Facts about occupations, about schools and colleges are gathered together from the most reliable sources available; these are organized in such a way as to be usable and helpful to the student. The student is trained so that he will appreciate the value of facts and will be

able to supplement the facts at hand with others that he himself may obtain. As far as possible, some of these facts are obtained by actual contact with the occupation or the school under consideration. Finally, the student is assisted in the organization of these facts and experiences by wise counsel so that the choice when finally made will be more likely to be a wise choice.

Guidance assists, then, in the solution of the problems of adolescents:

1. By gathering together data pertinent to the problems of adolescents and sifting these carefully to obtain the best and most reliable data available

2. By assisting the individual to gather facts for himself and to appreciate the value of facts

3. By analyzing the facts secured and organizing them in such a way that they may be readily used

4. By developing in the individual the ability to analyze and organize facts for himself

5. By utilizing situations normally in the lives of young people and developing others by which they may have actual contact with problems that they will need to solve

6. By wise counsel in which the thinking of the individual is guided in such a way as to make the best use of the data secured in order to solve the problem at hand

7. By developing in the individual a scientific attitude of mind towards his problems and a scientific technique for the solution of these problems

8. By stressing the individual rather than the group as the point of departure.

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PUPIL ADJUSTMENT IN THE SECONDARY SCHOOL

WILLIAM C. REAVIS

EDITOR'S NOTE: *Mr. Reavis has won general recognition for his work as an educational writer and as an administrator. He is the author of Pupil Adjustment in Junior and Senior High Schools, and has carried on numerous investigations which are of acknowledged significance. His most recent book is entitled, Office Practices in Secondary Schools, which he wrote in collaboration with Mr. Robert C. Woellner. Mr. Reavis holds the position of professor of education in the School of Education, University of Chicago.* J. R.

[In theory, education has long been regarded as a process of adjustment, but in practice the school has failed either fully to assume or satisfactorily to carry out the obligations which the theory has imposed.] In the secondary school, particularly, until recent years the responsibility for adjustment has been placed chiefly on the pupil, and failure has been employed as a remedy for maladjustment in spite of the fact that the school has known that [failure is not a remedy at all, but merely the symptom of a bad state of affairs.

Failure is frequently as much the fault of the school as of the pupil.] If the causes of failure are institutional, then the school should appraise the difficulties and make the readjustments required. On the other hand, if the cause rests with the pupil, it becomes the responsibility of the school to develop scientific methods of diagnostic study and corrective treatment which will enable it to provide guidance and remedial care.

It is not an easy task to render the kind of service which the theory of education implies. The human being is difficult to understand. For this reason society regards education as a skilled profession, and it seeks to protect the young from practitioners without definite training and special qualifications. If the practitioners are unqualified for the difficult tasks which education imposes, the fault rests with the institutions which society maintains for their proper training. It therefore behooves training schools and administrative officers charged with the responsibility of the training of teachers in service to strive to de-

velop the practices of education to the level of its theory. To accomplish the desired end, progress must be made along the following lines:

1. *The determination of educational status.* By educational status is meant the inherent possibilities of the pupil as a subject for education. Unless the school is able to appraise the possibilities of the pupil and to evaluate the conditions which will bring about his greatest development, it cannot competently discharge the function for which it receives support. Many factors and conditions may hinder the determination of an individual's educational status, but the fact cannot be offered as an alibi on the part of the school for its failure to acquire the knowledge and understanding of the individual essential to the making of an intelligent adjustment. With the educational status of a pupil known, it is possible for the school to direct development skillfully and with relative certainty, but with educational status unknown, the predicament of both school and pupil is obviously that of the blind trying to lead the blind.

After accepting a pupil as a subject for education, the first task of the school is to ascertain his true educational status as promptly as possible. This means that it must appraise the pupil's mental capacity, ascertain his pedagogical history, and acquire an understanding of his personality and the factors which have moulded it. The school may then undertake to offer counsel and guidance to the pupil and to direct his development.

A generation ago the school's only meth-

PUPIL ADJUSTMENT IN THE SECONDARY SCHOOL

ods of appraising its pupils were personal observation and crude examinations of the qualitative type. Today refined judgments have been made possible through improved tests of the objective type and through the scientific instruments developed and employed in related sciences. As a result, the school of today is no longer compelled to guess about educational status. If it chooses to be scientific, it can acquire exact knowledge regarding its pupils and can utilize the knowledge in effecting the adjustments which both the pupil and the school require.

2. *Sensitiveness to the symptoms of maladjustment.* The nature of the relationship between the pupil and the school is in no small measure responsible for the failure of the school often to sense the character of the changes which are actually occurring in the pupil. Mass teaching tends to shift the focus of the teacher's attention from the individual to the group. As a result teachers may be sentient to the progress of the group and at the same time insentient to the changes in an individual member of the group. Failure to sense an individual's condition may prove serious to the one concerned. Time is an important matter in the determination of failure and success. Inability on the part of the school to recognize a symptom at a critical period may result in the serious maladjustment, failure, and ultimate elimination of a pupil.

It is necessary to increase the sensitiveness of the school to the changes which occur in the individual pupils. The desired result can be accomplished by shortening the interval between periodic appraisals of pupil progress. The monthly or bimonthly period is too long to permit the timely discovery of changes in progress. Unless the individual receives guidance and help when difficulties are first encountered the final result may be disastrous. Weekly appraisals should therefore be made as a means of preventing serious maladjustment and fail-

ure in individual cases. If the symptoms of maladjustment are discovered in an individual through the weekly inventory, principal and parent should receive notice of the fact, if the teacher is powerless to give specific help.

Specific reports need not be made for every pupil in the school. Only those who require diagnostic and remedial consideration and those who need the stimulus of approval or disapproval should be made the subjects of written record. The record should be more than a statement of personal opinion. It should contain a frank report of the facts observed, the symptoms evidenced, the diagnosis of causes—if such is possible—and the remedies tried—if such have been undertaken. Inability or neglect to follow the procedure indicated may result in failure to sense the symptoms of maladjustment, to discover the causes of unsatisfactory progress, to undertake corrective or remedial measures, and to render professional service to the pupil.

3. *Educational diagnosis.* Educational diagnosis is the process of collecting, analyzing, and evaluating educational facts for the purpose of ascertaining and determining their bearing on the progress of a pupil in school. It may be carried out crudely or skillfully, but it must be carried out if the school adjusts its individual pupils to the work provided. The success of the school in the final analysis will depend very largely on the character of the educational diagnoses which it is able to make.

In the practice of medicine the physician must become a master of diagnosis to be successful. His training consists in the development of skill in the four cardinal methods of diagnosis; namely, inspection, palpitation, percussion, and auscultation. In addition, he may supplement his qualitative judgment when necessary with clinical measurements and the patient's medical history. If the case requires it, the physician

may investigate the family history of his patient, and require laboratory examination consisting of chemical analyses, bacteriological tests, and Röntgen-ray examinations. The physician's skill as a diagnostician, however, depends on his ability to make precise observations, to trace symptoms accurately to their causes, and to form from the facts ascertained a clinical picture of the case. Until he can perform the tasks indicated with precision, he is not entitled to respect as a diagnostician, and his success as a practitioner will be regarded with doubt.

The skill of the educator must be comparable with that of the physician. He should be able to make a true diagnosis of his individual pupils. The methods he must employ are in many respects similar to those used by the physician; namely, observation, refined measurement, interrogation, and historical investigation.

a) *Observation.* The power of observation of many educators has been allowed to atrophy from disuse. Teachers tend to devote too much of their classroom time to formal questioning about text material. They fail to observe the study habits of their pupils. As a result they do not know whether or not their pupils as individuals (1) employ effective habits of application and attention, (2) use their time wisely, (3) analyze and organize skillfully, (4) discriminate keenly, (5) attack problems independently, (6) work systematically, etc. They do not discover the personal difficulties of their pupils and as a result they accentuate rather than relieve maladjustment. The teacher, like the physician, must develop the power to make precise observations of the classroom performances of pupils to the end that exact diagnosis of learning difficulties may be made.

b) *Refined measurement.* Just as the invention and refinement of measuring instruments, such as the compound microscope,

thermometer, stethoscope, electro-cardiograph, baumonometer, etc., raised the practice of medicine to the level of a science, so the improvement of tests and examinations has made possible in education the more exact measurement of pupil ability and performance. The appraisal of the work of pupils by objective methods makes possible the diagnosis of abilities and disabilities and the adjustment of pupil to the work of the school and vice versa.

To illustrate, let us assume that one of the ninth-grade pupils shows signs of serious maladjustment during the first month of school. He is reported by his teachers as failing. They suspect that he is either mentally deficient or immature, and advise demotion. A series of tests, including mental examination, reading, spelling, English usage, and the fundamental operations of arithmetic and problem solving, are administered. The test results are studied and analyzed. The pupil is found to be normal mentally, but inaccurate and slow. His fundamental reading habits are faulty, and his reading power is three grades below his present classification. His disability in reading indicates difficulties in vision. An eye examination reveals vision 30 per cent below normal.

As a result of the test findings a true diagnosis of the pupil's difficulties are made and intelligent adjustment is rendered possible. Without the refined measurements, the remedies of failure and demotion probably would have been applied, and incentive to try killed, and the morale of the pupil destroyed.

c) *Interrogation and self-diagnosis.* With the findings reported in the previous section known, the principal or a teacher in the capacity of counselor engages the pupil under consideration in friendly conference. Questions are asked and answers are given. It is discovered that the pupil possesses an antipathy towards school caused by his lack

PUPIL ADJUSTMENT IN THE SECONDARY SCHOOL

of success and an attempt on the part of parents and a teacher in an earlier grade to enforce the wearing of improperly fitted lenses. The advantage of a correct fitting of glasses is pointed out, the nature of the present school difficulties are explained, the personal assets of the pupil are appraised, and the means of regaining the grade standing desired are discussed.

The pupil is led through skillful questioning to realize and appraise his own difficulties, to evaluate the means of overcoming them, and to overcome the antipathies towards school. As a result of self-diagnosis and self-understanding, the pupil develops a feeling of responsibility at least for coöperating in the removal of the barriers which stand in the way of personal success.

d) Case history. In serious cases of maladjustment, the causes may lie concealed in the pupil's history. Well-intentioned mistakes of parents or teachers, family heritage, environmental influences may be responsible for present difficulties which handicap the individual and retard his progress. The successful diagnosis of such a case may require an examination of the entire previous history and information available regarding the pupil. The procedure employed has been designated in medicine, law, and social service as the case method. It applies equally effectively in the diagnostic study of problem pupils in school.

The employment of the case method in educational diagnosis necessitates the systematic recording of the significant facts in the life of the individual pupil. Period reports which can be interpreted should be made and filed as a part of the pupil's school history. Significant personal data may be secured at the time of admission to school and test records can be filed in a pocket-folder in which a cumulative history of the

pupil can be acquired without the labor of transcribing data.

4. Remedial treatment. The end of diagnosis is always the application of appropriate remedial treatment. In practice, however, treatment often precedes diagnosis. The results in such instances are always uncertain. The physician who treats a patient without first diagnosing the case would be rated by the medical profession as a "quack." In education the same procedure would probably be excused on the ground of "bad pedagogy." It is malpractice in medicine or in education to treat without diagnosis, unless the treatment is undertaken for the purpose of experimentation and the outcome is known in advance to augur no serious harm to the subject of the experiment.

For convenience of study, remedial cases may be classified according to the major causes of maladjustment; namely, (1) ineffective habits of work; (2) personality difficulties; (3) deficiencies in previous training; (4) physical difficulties; (5) mental disabilities; and (6) psychophysical defects. The classification makes possible (1) the adoption of a definite terminology which will enable teachers and administrative officers better to understand their common problems; (2) a program of training in the identification of causes and appropriate kinds of treatment; (3) the utilization of strong teachers in the training of the entire staff through successful case studies related to the major types.

Scientific remedial treatment is made possible only through scientific diagnosis. Similarly, the development of measures designed to prevent maladjustment are dependent on successful early diagnosis. In the latter field there is a science in the making in education as well as in medicine. Some of the greatest achievements of medical science have been in the preventive field. The challenge to the educator to pre-

vent as well as to treat the mental ills of pupils is just as strong as the challenge to the physician to prevent and cure physical ills. The road to success in either case is to be found in the mastery of the process of diagnosis which makes possible success-

ful adjustment through preventive and remedial measures. Such service must become a vital part of the work of the modern secondary school if the confidence and support of those who entrust their children to its care are to be retained.

STUDENT ACTIVITIES AS A MEANS OF PROVIDING FOR ADOLESCENT NEEDS

EARLE U. RUGG

EDITOR'S NOTE: One of the arguments most frequently offered in behalf of student activities is the claim that they provide for adolescent needs which are ordinarily neglected by the formal curriculum. By virtue of his training, experience, and special study in this field Mr. Rugg is especially competent to evaluate this claim. Mr. Rugg is head of the department of education of the Colorado State Teachers College. J. R.

INTRODUCTION

The recent expansion of the American educational ladder compels increased attention to adolescent needs. For the first time in the history of any country a majority of American children in their 'teens are receiving a large part of their life training during this period of adolescence under the guidance of what may be termed formal school. Old out-of-school agencies—the home, the church, industry, general community life—no longer operate with sufficient effectiveness during this period. Infancy, educationally speaking, has been prolonged practically to the legal age of manhood and womanhood. Upon the formal school thus devolves a tremendous responsibility.

Formal education on the secondary level, embracing the adolescent years of American youth, must investigate how its program may be adjusted to the needs of children in this period of life. Adolescence itself is seemingly an inclusive concept from the Latin word, *adolescere*, meaning to grow up to maturity. Hence, the problem is to determine the material and means best suited to helping youth grow up to maturity. To determine how children grow in their 'teens demands consideration of all phases of experience. This discussion will, how-

ever, restrict itself to the consideration of one phase of adolescent needs, the so-called extracurricular activities, in the writer's opinion, better conceived of as student activities.¹ The writer has on earlier occasions protested the use of the term "extracurricular activities." These activities are not "extra" but are an integral part of the normal experience of individuals—in a broad sense, they probably represent a significant phase of the school's curriculum. In the writer's recent appraisal, *Extra-Curricular Activities*, above cited, he has canvassed in the introductory chapter (I) the general literature and has attempted to appraise the present philosophy of this movement. It is the purpose of this brief article to call attention to some of the implications of student activities for adolescent needs.

WHAT VALUES ARE CLAIMED?

The writer rearranged the best available summary (see Table I) by Koos. Table I reveals claims made for student activities. Two main objectives stand out:

¹ "Student Participation in School Government," Twenty-fifth Yearbook, Part II. National Society for the Study of Education. Public School Publishing Company, Bloomington, Illinois, 1926, and his recent monograph, *Extra-Curricular Activities*, p. 4, No. 9, Colorado Teachers College Education Series, Colorado State Teachers College, Greeley, Colorado, 1930 (the term "extracurricular" was used for the title of this monograph because of conventional usage).

STUDENT ACTIVITIES FOR ADOLESCENT NEEDS

TABLE I
A REARRANGEMENT OF KOOS'S CLASSIFICATION OF VALUES CLAIMED FOR EXTRACURRICULAR ACTIVITIES

No. of Item	Values	Freq.	No. of Item	Values	Freq.
1	2	3	1	2	3
1	Training in civic-social-moral relationships implying socialization, coöperation, actual experience in group life, citizenship education, ethical training.....	123	9	Intellectual development.....	7
2	Recognition of adolescent nature.....	24	10	Relation of school and community.....	7
3	Training for leadership.....	22	11	Constructive influence on instruction.....	6
4	Improved discipline and school spirit.....	21	12	Exploration.....	5
5	Training for recreation and aesthetic participation.....	15	13	Training for worthy home membership.....	4
6	Health.....	10	14	Vocational training.....	4
7	Recognition of interests and ambition of pupils.....	10	15	Training in business methods..	4
8	Improved scholarship.....	8	16	Retention in school.....	4
			17	Discharge of superabundant energies.....	4
			18	Worth-while friendships.....	3
			19	Training in parliamentary usage.	3
			20	Training in the fundamental processes.....	3

(1) The need for adjustment of youth to the major field of experience—the social or common values; and (2) the need for guidance in uncovering and developing the peculiar and latent talents of the individual pupil—individual or varying values. Under the former, one notes claims made for providing for training in civic-social-moral experiences, relationships of school and community, worth-while friendships, improved school spirit, and provision for experience in such major classes as health, recreation, and vocations. Under the latter, one notes as the second ranking value—recognition of adolescent nature—with other values claimed implying variations in procedure for individuals as follows: (a) training for leadership, (b) recognition of the interests and ambitions of pupils, (c) exploration, and (d) discharge of superabundant energies.

The American secondary school has been traditionally narrow in its objectives and curriculum. Originally an aristocratic institution in personnel and purpose, its expansion by virtue of increased material ability of the American people to support prolonged education for all youth has introduced many complicating factors into the problem of what shall be taught. For example, some forty years ago the high-school personnel was apparently recruited from the upper 20 to 30 per cent of the so-called social and economic classes; today the reverse is more nearly true—probably 30 to 40 per cent of children of high-school age are enrolled in high school. This institution is now democratized to the extent that it recruits its personnel apparently from at least the upper 60 to 75 per cent of the total range of social and economic levels.

What adjustments have been made in the

program for large numbers of children not requiring nor perhaps being able to grasp relatively abstract materials, traditionally believed of preparatory value for the narrow, aristocratic objective of education as an adornment? Very few. The typical high-school graduate devotes three fourths or more of his time to the relatively abstract subject matter of formal English, chiefly the literary classics, to mathematics (algebra and geometry), to history, to foreign languages, and to science. And yet such commonly accepted² ideal objectives as health, vocational training, home and family relationships, and leisure secure less than one sixth of the time of high-school pupils, even though they constitute over half of the so-called cardinal objectives of secondary education. Apparently materials devoted to such fields are very much undervalued, though on their face they have obvious value today in life outside the school.

WHAT PRINCIPLES ARE RECOGNIZED?

The chief adjustment attempted in order to adapt the secondary program to adolescent needs seemingly is found in the newer types of so-called extracurricular or student activities, embracing what Counts terms the unofficial program in contradistinction to the formal subjects as the official program of school subjects.

In origin these activities represented principally pupil initiative. Evils³ developed, and as a result school authorities developed an administrative program for their proper control (see Table II—also from Koos) and rationalized or justified values for these new student activities (Table I). The result now is evident in the virtual addition

to the school program of a host of new activities (athletics, clubs, dramatics, debating, student government, school publications, etc.). As Table II reveals, they are under school direction and control. Supervision is demanded, and they are now assigned definite time allotments in the daily schedule. About all that remains administratively is to give them credit, and there is even considerable agitation for the latter.

From the point of view of adolescent needs two considerations should be noted; first, the recognition (Table II) administratively for adjustment to pupil needs in an emphasis to (a) a wide variety of activities, and (b) leeway for individual student choice, and, second, the careful analysis of just how adolescent needs can be best provided for. In the preceding paragraph the writer implied an indictment of the movement; namely, that we school people have organized the movement and have listed what we believe or would like to believe happens to children as a result of participation in these unofficial activities, but only in slight degree have we investigated the actual situation of what does happen to children participating in student activities.

WHAT ARE ADOLESCENT NEEDS?

Authorities seemingly agree that growth during the period of youth involves significant changes. "It is a period of rapid physical development, comprising a time of pronounced acceleration of growth in stature, weight, breathing capacity, anatomical development, and the like. More than this, it is the period of arrival of sex maturity with its accompanying primary and secondary sex characteristics, rapidly differentiating the adolescent from the preadolescent in these important respects. Such evidence as we have on mental development in adolescence is not as unequivocal as that pertaining to physical development, but there is some ground for the belief in ac-

² Commission on the Reorganization of Secondary Education, "Cardinal Principles of Secondary Education," Bulletin No. 35, 1918, United States Bureau of Education, Washington, D. C.

³ Control of amount of participation, duplication, excessive time devoted to activities cliques, etc. Earle Rugg, *Extra-Curricular Activities*, p. 8.

STUDENT ACTIVITIES FOR ADOLESCENT NEEDS

TABLE II
NUMBER OF SOURCES RECOGNIZING EACH PRINCIPLE TO BE OBSERVED IN ORGANIZING, ADMINISTERING, AND SUPERVISING EXTRACURRICULAR ACTIVITIES

No. of Item	Principles	Frequency
1	2	3
	I. Centralization of Organization and Administration	
1	Under school direction and control.....	16
2	Some plan of unification and centralization.....	6
3	Authoritative sanction for new organization.....	8
4	Veto power of principal on all actions.....	3
	II. Supervision	
5	Supervision for all activities.....	11
6	Guidance and coöperative leadership rather than complete direction.....	20
7	Appreciation of value by teachers.....	4
8	Responsibilities for all teachers.....	3
9	Expert knowledge of all sponsors.....	5
10	Selection and promotion of teachers in part for extracurricular efficiency.....	3
11	Adjustment of teaching schedules for heavy extracurricular loads.....	4
	III. Scope and Participation	
12	Adaptation of organization to school.....	5
13	Gradual, not sudden development.....	10
14	Source in curricular life of school.....	6
15	Higher aim than sociability only.....	9
16	Wider variety of activities.....	13
17	Leeway for individual student choice.....	13
18	Participation by all students.....	17
19	Membership equally open to all.....	20
20	Limitation of number to which any student may belong.....	4
	IV. Other Administrative Problems	
21	Definite scheduling of organizations.....	6
22	Part of regular program.....	10
23	Few if any evening meetings.....	4
24	High school the meeting place.....	7
25	Students the only members.....	5
26	Expenses moderate.....	5
27	Coöperation of homes.....	4

celerated development even here. . . . It is not easy to shake the belief in a profound change in the affective phase of life and in a genuine acceleration in the social impulses and allied interests."⁴

⁴L. V. Koos, *The American Secondary School* (Boston: Ginn and Company, 1927), p. 91. (See also his excellent summary of physical and mental growth of secondary pupils, pp. 49-90.)

What implications do we find for directed education? Space permits but rather dogmatic statements adapted from authorities in the field. There should seemingly be:

1. Attention to instruction and training in matters of health, recognizing the need of attention to physical growth of all chil-

dren through building on natural play tendencies, stressing intermural physical activities at the expense of competitive interscholastic sports, with all the values of development, rhythm, poise, and grace of bodily movement. Furthermore, provision for facts, skills, and appreciations of personal and social hygiene by which a high standard of community and individual living may be maintained is essential.

2. Provision for proper mental development, through organization of varied studies and activities, recognizing the facts of innate tendencies (attention, curiosity, activity, manipulation), developing thoughtful and tolerant understanding of the social heritage and its application in present-day situations and problems, and providing for individual differences.

3. Organization of a social life in terms of making Dewey's ideal of the school as a miniature society—building upon inborn tendencies such as gregariousness, approval and disapproval, rivalry and coöperation, mastery and submission, etc., with provision for exchange of experiences in open fora, assemblies, social functions, and exploration under guidance of life outside the school.

4. Development of the aesthetic side of youth—stimulating the emotional side of life, guiding the creative impulses of children.

5. Provision for moral guidance and interpretation. When religion is broadly conceived of as man's almost instinctive attempt to interpret life and environment and to determine what is good, one can see the supreme need of formal education as moral guidance directed to a synthesis and appraisal of life's experiences. "Then curiosity regarding life processes and cosmic forces is an expression of their search for God and for an understanding of the 'tie' that connects man with Him."⁵

⁵ C. O. Davis, *Junior High School Education* (New York: The World Book Company, 1924), p. 48.

WHEREIN ARE STUDENT ACTIVITIES RELATED?

The task of formal education is now conceived to be to teach pupils to do better the things they need to do.⁶ A functional point of view is demanded. One must determine what are the things pupils need to do by analysis of the activities and problems of life. Some of the activities and problems will pertain to maintenance of health, others to the use of leisure, still others to economic life, and others to citizenship. Particularization of the more frequent, universal, and crucial of these activities is next required. Then consideration must be given to which of these activities can be best transferred to the school and wherein situations may be provided for teaching pupils to perform these activities with effectiveness and satisfaction.

A shift should therefore be made from relatively abstract subject matter as an end to activities that students need to learn to perform, with any subject matter contributing to the performance of these activities regarded as "service" materials. Part of these activities will have social or common value, to promote social-civic-moral relationships. Part of these activities will have individual value, to develop individual talents and latent abilities.

In these student activities—athletics, clubs, dramatics, debating, student participation in school government, school publications—one finds inherent values of interest, not to be ignored. The values and principles⁷ stressed in the movement reveal the shift from traditional subject matter set-out-to-be-learned to child needs and in-

⁶ Adapted from T. H. Briggs, *The Junior High School* (Boston: Houghton Mifflin Company, 1920), p. 157.

⁷ Values: (1) recognition of adolescent nature; (2) recognition of interests and ambitions of pupils; (3) exploration; and (4) discharge of superabundant energies, and Principles: (1) wide variety of activities; (2) leeway for student choice; (3) recognition of individual differences; and (4) self-activity.

BIBLIOGRAPHY ON THE PSYCHOLOGY OF ADOLESCENCE

terests.⁸ Learning is probably most effective when it takes place in "the matrix of a situation which grips the learner."⁹ The "drives" of interest and desire to know and to do are preponderant in this movement. Growth takes place in learning to do better the things one needs to do anyway and moving up the scale from scientifically determined deficiencies to determined standards, in so far as one's ability and interest permit one to be moved.

It is at least a worthy hypothesis that

⁸ The writer doubts seriously the sociological value of interest—that the curriculum may be safely based on children's interests—but does believe that child needs and interests possess crucial psychological or learning values.

⁹ This clause is quoted from the composite statement of the Committee on Curriculum Making of the National Society for the Study of Education. Twenty-sixth Yearbook, Part II, p. 18, Public School Publishing Company, Bloomington, Illinois, 1927.

these student activities provide either more closely for needs of adolescents in life outside the school than does the traditional compartment organization of school subjects or, if not, that they are a crucial supplement to the latter. Careful analyses of life needs of both adults and children are demanded. Then a program of student activities both in and out of the classroom and school is required to equip adolescent youth in their final directed education for meeting with effectiveness and satisfaction the activities and problems of life. Student activities have made and will continue to make a contribution in that they set in relief the actual things students tend to do. Investigation is required to discover the use and value of such activities in life.

A SELECTED AND ANNOTATED BIBLIOGRAPHY ON THE PSYCHOLOGY OF ADOLESCENCE, 1920-1930

W. R. CARTER

EDITOR'S NOTE: Space limitations make an exhaustive or complete bibliography an obvious impossibility. For this reason I have asked Mr. Carter to list and annotate those books and references which he has found most helpful in the presentation of a course in the psychology of adolescence. Students who use this bibliography should keep this restriction in mind. Mr. Carter has served as a member of the staff of the Southeast Missouri State Teachers College at Cape Girardeau, and as a member of the staff of the University of Missouri Summer Session at Rolla, Missouri. At the present time he is an assistant in education in the University of Missouri.

J. R.

BOOKS ON THE PSYCHOLOGY OF ADOLESCENCE

Brooks, Fowler D. *The psychology of adolescence*, Boston, Houghton Mifflin Company, 1929.

This book is one of the best and most up-to-date of the books on the psychology of adolescence. It contains good summaries of experimental investigations, criticisms, and evaluations of various views and opinions concerning important problems in this field, and very helpful bibliographies at the end of each chapter.

Hollingsworth, Leta S. *The psychology of the adolescent*, New York, D. Appleton and Company, 1928.

A series of common-sense essays on a number of very practical and important problems of adolescence. It is written in a clear and fairly non-technical style and is scientifically sound. A good book for parents as well as for teachers.

Pechstein, L. A. and McGregor, A. L. *The psychology of the junior high school pupil*, Boston, Houghton Mifflin Company, 1924.

This book contains some very helpful material in spite of the fact that it discusses at some length, in Section I, certain rather subjective and controversial aspects of the subject. Section II deals with certain practical problems relating to actual classroom procedure with junior-high-school pupils. The chapters on supervised study, individual differences, failure prevention, socialization, and guidance are concisely written and easy to read.

Sandiford, Peter. *Educational psychology*, New York, Longmans, Green and Company, 1929.

This is one of the best references on the principles of educational psychology, which are, of course, as valid for the so-called period of adolescence as for any other.

BOOK REFERENCES ON VARIOUS PROBLEMS IN THE
PSYCHOLOGY OF ADOLESCENCE

Baldwin, Bird T. *The physical growth of children from birth to maturity*, University of Iowa Studies in Child Welfare, I, 1, Iowa City, 1921. 411 p. This study includes data on growth during adolescence, differences between boys and girls in growth, and related material.

Baldwin, B. T., and Stecher, L. I. *Mental growth curve of normal and superior children*, University of Iowa Studies in Child Welfare, II, 1, Iowa City, 1922, 61 p.

A technical but understandable presentation of facts on the disputed questions concerning the rate of mental growth.

Baldwin, B. T., and Wood, T. D. *Weight-height-age tables*, New York, American Child Health Association, 1923.

Valuable for clinical and health work in the high school. Presents data on the question of rate of growth before and during adolescence.

Bigelow, M. A. *Adolescence—educational and hygienic problems*, New York, Funk and Wagnalls Company, 1924. 60 pp. (In the National Health Council Series.)

This little booklet contains some excellent material on the nature of the adolescent. It attacks some of the educational and hygienic problems of adolescence in a very practical and scientific way. It is a good book for parents.

Blanchard, Phyllis. *The adolescent girl*, New York, Dodd Mead and Company, 1924. 250 p.

This book contains some valuable material for both teachers and parents. It is of especial value to the adviser of girls.

Book, W. P. *The intelligence of high school seniors*, New York, The Macmillan Company, 1922. 371 p.

This book contains some important data on individual differences and on differences between the sexes in various abilities at the high-school level.

Brooks, F. D. *Changes in mental traits with age, determined by annual retests*, Teachers College Contributions to Education, 116, Teachers College, Columbia University, 1921. 88 p.

A statistical and rather technical report of the results of an objective study of mental growth in the same pupils over a period of years.

Burnham, W. H. *The normal mind*, New York, D. Appleton and Company, 1924. 702 p.

One of the best references on mental hygiene. It has much that is of interest to the student of the psychology of adolescence. The "main thesis of the book is the attempt to show the

importance of the task as a condition of education and mental health alike."

Chapman, J. C., and Counts, G. S. *Principles of education*, Boston, Houghton Mifflin Company, 1924. 645 p.

This book has a quite definite and consistent background in psychology, and contains many references to problems concerning the psychology of adolescence.

Chicago High School Deans of Women. *Manners and conduct in school and out*, Allyn and Bacon, 1922.

A very practical book for use with high-school pupils as an aid to the development of correct social habits and manners. It is one of the best of books of its kind.

Germane, Charles E., and Germane, Edith G. *Character education, a program for the school and the home*, Newark, New Jersey, Silver Burdett and Company, 1929. 224 p.

This book applies to both the elementary and the high-school field. It is recommended to all parents and teachers. Also contains very fine bibliographies.

Gibson, Jessie E. *On being a girl*, New York, The Macmillan Company, 1927. 326 p.

This book was written for a course in guidance of girls in the high schools of Washington. It contains a clean and sound discussion of the problems of the high-school girl, and can be put in the hands of the pupil. It also contains a good "Bibliography for Girls."

Lincoln, E. A. *Sex differences in the growth of American school children*, Baltimore, Warwick and York, 1927. 181 p.

A reading of this book will clear up certain popular fallacies regarding differences between boys and girls in intelligence, growth, and special abilities. Chapter VI deals with the educational significance of such differences as do exist.

Reavis, W. C. *Pupil adjustment in junior and senior high schools*, New York, D. C. Heath and Company, 1926. 348 p.

Contains specific and detailed reports of methods of pupil adjustment used in the University of Chicago High School. It also contains nine case studies of typical problems in adjustment.

Richmond, Winifred. *The adolescent girl*, New York, The Macmillan Company, 1925. 212 p.

Has chapters on the adolescent girl in earlier times, the meaning of adolescence, the abnormal girl, the delinquent girl, the normal girl, and training and education of girls. It also contains many case studies.

Ruch, G. M. and Stoddard, G. D. *Tests and measurements in high school instruction*, Yonkers-

BIBLIOGRAPHY ON THE PSYCHOLOGY OF ADOLESCENCE

- on-Hudson, N. Y., World Book Company, 1927. 381 p.
Contains descriptions of various secondary-school tests, with criticisms and comparisons of tests in each subject. Also contains criteria for selection of tests and principles of testing.
- Symonds, P. M. *Measurement in secondary education*, New York, The Macmillan Company, 1927. 588 p.
Describes various tests in high-school subjects, intelligence tests, prognostic tests, and achievement tests. Also has a discussion of marks, marking systems, guidance, promotion, and ability grouping.
- Terman, L. M. et al. *Genetic studies of genius*, Vol. I, Stanford University Press, Stanford, California, 1925. 648 p.
A quite detailed study of gifted children. Contains chapters on family histories of gifted children, health and physical history, school progress and educational history, the various interests of gifted children, tests of character and personality traits, summary of data on 309 gifted high-school pupils, and a chapter on conclusions and problems in relation to gifted children.
- Toops, H. A. *Tests for vocational guidance of children thirteen to sixteen*, Teachers College Contributions to Education, No. 136, Teachers College, Columbia University, 1923. 169 p.
A good summary and discussion of various tests useful in vocational guidance. Contains good bibliographies.
- Twenty-fourth Yearbook of the National Society for the Study of Education*, Part II, "Adapting the schools to individual differences," Bloomington, Illinois, Public School Publishing Company.
This yearbook summarizes various plans for taking care of individual differences in the high school and contains very complete discussions of the ways in which this problem is handled in different schools.
- PSYCHOLOGICAL ANALYSIS OF SUBJECT MATTER IN THE HIGH-SCHOOL SUBJECTS
- Some of the most valuable and practical contributions to the psychology of adolescence during the past decade have been in the field of the psychological analysis of subject matter in the high-school subjects. A lack of space makes necessary the limitation of this section to a few of the outstanding contributions in the fields of science and mathematics. These studies should be of interest to every high-school teacher, however, because of the techniques of analysis employed. The following references have been selected from a large number of studies:
- Andrews, F. E. *The relation between vocabulary difficulties and failure in high school mathematics*, Master's Thesis, University of Chicago, 1927.
This is a scientific and practical study of fundamental vocabulary difficulties in high-school mathematics. It is typical of a number of investigations having to do with the vocabulary of high-school subjects.
- Burgess, Thomas O. *A psychological analysis of abilities in high school physics*, University of Iowa Studies in Education, III, 6, Iowa City, 1926.
This study contains conclusions as to the influence upon ability in high-school physics of such factors as interests in physics, ability in the simple mathematics of physics, observation aptitude, reading comprehension, and number and logic series.
- Kilzer, L. R. *The mathematics needed in high school physics*, Ph.D. Thesis, University of Iowa, 1928. (A brief report of this study appears in *Science Education* for November, 1929.)
The title of this dissertation suggests the practical nature of the study. The actual mathematical operations used in high-school physics have been very carefully analyzed and reported. This study is very detailed in its analysis. The Kilzer-Kirby *Inventory test for the mathematics needed in high school physics* was constructed and used during this investigation and represents a practical result of the study. It has been published by the Public School Publishing Company, and is now being used by many physics teachers.
- Pressey, Luella Cole. "The needs of freshmen in the field of mathematics," in *School Science and Mathematics*, XXX, pp. 238-243 (May, 1930).
A good discussion of the mathematical concepts and abilities needed by the college freshman in certain college courses.
- Schorling, Raleigh. *A tentative list of objectives in the teaching of junior high school mathematics*. Published by George Wahr, Ann Arbor, Michigan.
This is one of the best of the psychological analyses in junior-high-school mathematics. It also contains some very worth-while suggestions on the teaching of junior-high-school mathematics as well as a very complete list of objectives and suggested outcomes of instruction.
- Welte, Herbert D. *A psychological analysis of plane geometry*, No. 1, University of Iowa, Monographs in Education, 1926, Iowa City, 1926.
This is a very detailed analysis of the subject matter of plane geometry. It includes a study of the vocabulary and a list of 288 definitions and theorems.
- MAGAZINE ARTICLES
- Briggs, Thomas H. "Sarcasm," *School Review*, XXXVI, 1928, pp. 685-695.

- Every teacher should read this article in order to avoid one of the frequent criticisms made by high-school pupils. Also contains suggestions to supervisors on how to deal with teachers who are sarcastic with pupils.
- Brooks, F. D. "Rate of mental growth, ages nine to fifteen," *Journal of Educational Psychology*, XII, 1921, pp. 502-511.
- A rather technical report of annual retests of 175 children of ages nine to fifteen.
- Brooks, F. D. "Sectioning junior-high-school pupils by tests and school marks," *Journal of Educational Research*, XII, 1925, pp. 359-369.
- A valuable reference for the junior-high-school principal who is planning ability grouping of pupils. Several methods of sectioning are described and evaluated.
- Brooks, F. D., and Bassett, S. Janet. "The retention of American history in the junior high school," *Journal of Educational Research*, XVIII, 1928, pp. 195-202.
- This is one of the few objective researches in this field.
- Darsie, M. L. "A method of reporting the significance of intelligence tests to parents and teachers," *School and Society*, XXII, 1925, pp. 597-600.
- This article is recommended to high-school principals because of the practical treatment of a rather troublesome problem.
- Davis, C. O. "Provisions for meeting individual differences among pupils in the junior high school," *School Review*, XXXIV, 1926, pp. 510-520.
- Good summaries of what is being done in several individual schools. Twenty-two suggestions for taking care of individual differences are listed.
- Dickson, V. E. "The use of group mental tests in the guidance of eighth grade and high school pupils," *Journal of Educational Research*, II, 1920, pp. 601-610.
- A good discussion of problems involved in sectioning classes on basis of mental test results.
- Douglass, A. A. "Vocational interests of high school seniors," *School and Society*, XVI, 1922, pp. 79-84.
- Deals with this problem from the standpoint of the pupil himself.
- Eikenberry, D. H. "Permanence of high school learning," *Journal of Educational Psychology*, XIV, 1923, pp. 463-481.
- A very complete report of an experiment involving testing college students over subjects which they had in high school but had not continued in college.
- Garrison, S. C. "Additional retests by means of the Stanford revision of the Binet-Simon tests," *Journal of Educational Psychology*, XIII, 1922, pp. 307-312.
- Contains data on the constancy of the I. Q. and of the degree of correspondence between intelligence scores for the same subjects.
- Gates, A. I. "The nature and educational significance of physical status and of mental, physiological, social and emotional maturity," *Journal of Educational Psychology*, XV, 1924, pp. 329-358.
- A good summary of various views as to the relations between certain factors which influence achievement. This is one of the best of the references on the relation between mental and physical maturity. It is also of value to the high-school principal because of the techniques used in the measurements involved in the investigation. Views are presented here in opposition to those of Baldwin and others.
- Hollingworth, Leta S., and Taylor, Grace A. "Size and strength of children who test above 135 I. Q.," *Twenty-third Yearbook of the National Society for the Study of Education*, Part I, 1924, pp. 221-235.
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- Reports the correlation between intelligence and success in physics. Describes techniques for the prediction of success in physics from the results of intelligence tests. Can profitably be read by teachers of other high-school subjects because of the techniques used.
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- Symonds, P. M. "The present status of character measurement," *Journal of Educational Psychology*, XV, 1924, pp. 484-498.
- Good summaries of attempts at character measurement and worth-while criticisms of the whole movement with a discussion of possible lines of development. Also includes a very complete bibliography on character measurement up to 1924.
- Terman, L. M. "Mental Growth and the I.Q.," *Journal of Educational Psychology*, XII, 1921, pp. 325-341 and 401-407.
- Contains good summaries and criticisms of previous contributions along this line. This is one of the best articles available for one who wishes to become familiar with this problem with a minimum of reading.

A STUDY OF "TALK CONTACTS" OF ADOLESCENT PUPILS

Terry, P. W. "The social experience of junior high school pupils," *School Review*, XXXV, 1927, pp. 194-207 and 272-280.

A report of an objective study of 903 boys and girls in the Alexander Graham Junior High School, Charlotte, North Carolina. Also discusses methods of social training.

Thorndike, E. L. "On the improvement of intelligence scores from fourteen to eighteen," *Journal of Educational Psychology*, XIV, 1923, pp. 513-516.

A report of an investigation involving measuring the intelligence of about 4,000 children in each of the grades of the high school at intervals of a year. An examination representing a composite of recognized group intelligence tests was used.

Thorndike, E. L. "Changes in the quality of pupils entering high school," *School Review*, XXX, 1922, pp. 355-359.

A brief presentation of facts relating to changes in the average intelligence of beginning students in recent years. This article should be read by every high-school principal and teacher.

Unzicker, S. P. "The junior high school and the mentally handicapped adolescent," *School Review*, XXXVI, 1928, pp. 52-57.

A report of a plan for providing for the training of less intelligent junior-high-school pupils in the Roosevelt Junior High School, Fond du Lac, Wisconsin.

A STUDY OF THE "TALK CONTACTS" OF ADOLESCENT PUPILS WITH THEIR TEACHERS

HOWARD YALE MCCLUSKY and ERNEST H. CHAPELLE

EDITOR'S NOTE: *The activities of the competent high-school teacher are by no means confined to the classroom. The importance of these out-of-class relationships which exist between teachers and pupils is clearly set forth in the study here reported. Mr. McClusky holds the position of assistant professor of educational psychology, mental measurements and statistics, in the School of Education, University of Michigan. Mr. Chapelle is the Superintendent of Schools at Charlotte, Michigan.*

J. R.

The following investigation is based on two assumptions: first, that the incidental verbal behavior of high-school pupils may be valuable evidence in the study of adolescence; and second, that the teacher is a vital factor in the mental hygiene of adolescent boys and girls.

The data of this investigation were secured by the teachers of the high school of Charlotte, Michigan. The talk contacts consisted of the conversations which the teacher had with a pupil at some time other than the regular class period. The talk contacts were recorded by the teacher on copies of the following blank which were provided for that purpose.

RECORD BLANK FOR PUPIL-TEACHER "TALK CONTACTS"

Whenever possible underline appropriate answer below. Age of pupil.....

1. Your name.....
Name of school.....
2. Subject you teach.....
Years teaching experience.....
3. Date of "talk" contact.....
Name and grade of pupil.....

4. Intelligence of pupil (I. Q. if possible; if I. Q. is not available, underline whether pupil is inferior, average, superior, very superior).
5. Mark representing pupil's achievement in your class (A, A-B, B-C, C-D, D-etc.).
6. Place where "talk contact" occurred (on street, over phone, in store, in hall, in homeroom, office, classroom, etc.).
7. Did "talk contact" occur with one pupil, two pupils, or in a group of three or more.
8. Degree of importance of "talk contact" to pupil (slight importance; genuine importance, but not serious; serious importance, but not requiring immediate attention; grave importance, requiring immediate attention).
9. Probable result of "talk contact" (this will be difficult to determine, when you are not certain simply underline this word "indeterminate;" if you can tell, note change in attitudes; i.e., encouragement, discouragement, anxiety, relief, etc., or change in decision or course of action.)
10. Character of "talk contact" (wanted advice; wanted to share experience, i.e., confide some enthusiasm; or merely "wanted to talk").
11. Number of times pupil has talked to you before (never before, occasionally, many times).
12. Was the "talk contact" initiated and arranged by you, or by the pupil on his own choice?

JUNIOR-SENIOR HIGH SCHOOL CLEARING HOUSE

TABLE I
THE DISTRIBUTION OF TALK CONTACTS BY TEACHERS

Teachers	Subject	Years of Experience	8	9	10	11	12	B	G	Total
<i>Male</i>										
BJH	Agriculture.....	6	0	8	14	6	1	27	2	29
JD	Physics.....	12	0	0	0	1	0	1	0	1
HAM	Mathematics.....	2	0	0	2	4	6	6	6	12
EVM	Manual Arts.....	4	0	0	1	2	0	3	0	3
REM	History.....	5	0	2	7	19	5	14	19	33
<i>Female</i>										
MT	Social Science.....	13	2	1	1	2	1	3	4	7
RH	French.....	5	0	1	1	1	1	0	4	4
WW	English.....	16	0	0	0	5	0	4	1	5
AC	Commercial.....	5	0	1	2	1	1	0	5	5
HW	Commercial.....	5	0	1	2	1	3	1	6	7
FW	English.....	15	7	10	1	0	0	9	9	18
NM	Mathematics.....	9	3	4	2	1	0	7	3	10
MS	Latin.....	1	2	1	0	5	2	3	7	10
DS	English.....	2	0	1	4	5	0	10	0	10
MS	Physical Training.....	2	0	2	1	0	1	2	2	4
MK	English.....	9	0	2	0	3	7	1	11	12
MC	Household Economies...	4	1	0	1	1	2	0	5	5

13. Aside from the possibility of being the topic for discussion have the parents of the pupil had anything to do with this "talk contact." Give details.
14. How much time was spent in the "talk contact"; if more than one topic was discussed, give the time devoted to each topic.
15. As far as you know is this pupil's total behavior in school satisfactory or causing difficulty of any degree? Is he exceptionally well adjusted, has only minor behavior difficulties, has behavior difficulties of some importance, or has extremely serious behavior difficulties that make him a "problem case"?
16. In the remaining space on this page and on the other side of this sheet give the topic or topics which the pupil discussed with you, and give any other facts (not called for above) which you regard as important for understanding the significance of the "talk contact." Give this part of the report your most careful attention for it is very important.

Talk-contact records were kept for a typical school week beginning on Wednesday and ending on the following Tuesday

in order to include not only regular school days but also week-end holidays as well. Care was taken to record the talk contacts immediately after they occurred out of the presence of the pupil. In this way the accuracy of the report was enhanced and the embarrassment of the pupil was avoided. At the time of this investigation the enrollment of the five upper grades of the high school participating in the study was five hundred and thirty five.

The tabulation of the data indicated that contacts were reported for 91 boys and 84 girls, and that 15 of the 91 boys and 18 of the 84 girls made more than one contact during the week. The remainder of the discussion will be devoted to a report of the results.

Table I shows the subject taught, the years of teaching experience, and the number of boys and girls in each grade with whom contacts were made.

A STUDY OF "TALK CONTACTS" OF ADOLESCENT PUPILS

The data of the above table are striking in revealing the wide individual differences in the number of contacts made by the various teachers. The explanation of these differences is not to be found in the years of teaching experience since the correlation (Spearman's foot rule formula) between years of experience and number of talk contacts is $-.08$, $P. E. \pm .05$. Neither is the explanation found in the subject taught. Four teachers of English had respectively 5, 10, 12, and 18 talk contacts. One teacher of history had 33 contacts, while a teacher of a related subject, social science, had 7 talk contacts. Nor does the utilitarian value of subject matter account for the differences. The teacher of agriculture, a practical subject, reported 29 talk contacts, while two teachers of commercial subjects report 5 and 7 contacts, respectively, and

differences in number of contacts are to be accounted for in the personality of the teachers. In fact, knowing the situation as the writers do, they are inclined to regard the frequency of talk contacts, at least in the extreme cases, as a rough measure of the degree of approachableness possessed by the teachers.

Table II shows the distribution of talk contacts by sex, grade, and intelligence, while Table III contains the distribution of the same data by school marks.

Since the enrollment of the various grades is approximately the same, with a slightly greater number in the eighth and ninth grades, Table II is significant in showing a much smaller number of contacts with pupils in the eighth grade as compared with the number made in the upper grades.

TABLE II
DISTRIBUTION OF TALK CONTACTS BY INTELLIGENCE

Intelligence	8		9		10		11		12		Total		Total
	B	G	B	G	B	G	B	G	B	G	B	G	
Inferior.....	0	1	1	0	1	0	3	3	0	1	5	5	10
Average.....	1	6	21	8	17	11	16	10	4	10	59	45	104
Superior.....	0	5	1	2	7	1	13	7	2	11	23	26	49
Very Superior.....	1	1	1	0	0	2	2	3	0	2	4	8	12
Total.....	2	13	24	10	25	14	34	23	6	24	91	84	175

TABLE III
DISTRIBUTION OF TALK CONTACTS BY SCHOOL MARKS

School Mark.....	A	A-	B	B-	C	C-	D	D-
Total.....	20	23	32	16	53	10	19	2

one teacher of household economics reports 5 contacts. Similar analyses will indicate further that neither the sex of the teachers, nor the laboratory and recitation types of instruction seem to influence the variation in the number of contacts. It is the conclusion of the writers that the individual

Tables II and III indicate a greater number of contacts with pupils average and superior in intelligence and achievement than with pupils inferior in intelligence and achievement. These data show rather clearly that during the week of this investigation the pupils in the eighth grade (early adoles-

JUNIOR-SENIOR HIGH SCHOOL CLEARING HOUSE

cence) and those of lower intelligence and achievement are not as closely in contact with their teachers as their associates in the upper grades and upper levels of ability and performance. There is not enough space available to speculate on the explanation of this discrepancy, but there is no evidence anywhere in psychological or educational literature of which the writers are aware that boys and girls in early adolescence, and adolescents of inferior ability and performance, are less in need of friendly counsel than their older and abler brothers and sisters.

Further tabulations of the data show that talk contacts in 142 cases occurred with only one pupil at a time, in 21 cases with two pupils, while in only 12 cases were three or more pupils present. These results

they regarded 12 contacts to be gravely important requiring immediate attention, 10 more they regarded as serious but not requiring immediate attention, 98 more were considered to be of genuine importance, while 55 were thought to be a matter of only slight concern to the student. In 97 cases the pupils wanted advice, in 31 and 13 instances, respectively, they wished to share some experience and confide some enthusiasm, while in 34 cases the pupils just wanted to talk. These data as to outcome, importance and character of talk contacts probably present a fairly accurate picture of the incidental pupil-teacher relationship.

Tables IV, V, and VI demonstrate clearly that these relationships are primarily a matter of pupil initiative, that they have occurred many times before the week covered

TABLE IV

NUMBER OF TIMES PUPIL HAD HAD PREVIOUS CONTACTS

Many		Occasionally		First time	
Number	Per cent	Number	Per cent	Number	Per cent
66	37.7	98	56	11	6.3

TABLE V

BY WHOM TALK CONTACT WAS INITIATED

Teacher		Pupil		Parent	
Number	Per cent	Number	Per cent	Number	Per cent
12	6.8	161	92	2	1.1

TABLE VI

DISTRIBUTION OF TIME SPENT IN TALK CONTACTS

Minutes	180	40	30	20	15	11	10	5	3	2	1	1½	½
Number.....	1	1	4	2	3	1	8	31	44	35	24	1	13

may have been accidental, but there is a strong likelihood that these boys and girls prefer to talk with their teachers alone.

It was difficult for the teachers to determine the outcome of the talk contacts, but

by this investigation, and that most of them are of comparatively short duration.

The topics discussed were classified into seven main categories and are listed in the following table:

A STUDY OF "TALK CONTACTS" OF ADOLESCENT PUPILS

TABLE VII

A CLASSIFICATION OF THE TOPIC DISCUSSED IN TALK CONTACTS

Topics	By Men Teachers With		By Women Teachers With		Total
	Boys	Girls	Boys	Girls	
I Topics Connected with School Classroom Work					
1. Book reports.....	4	1	10	3	18
2. Library technique.....	..	..	2	1	3
3. Oral reports.....	..	..	..	2	2
4. Life insurance.....	..	..	..	1	1
5. Help with assignments.....	2	3	1	1	7
6. Examinations.....	5	2	6	..	13
7. Reading habits.....	..	1	..	..	1
8. Projects in agriculture.....	14	..	1	3	18
9. Making up work.....	1	..	..	..	1
Totals.....	26	7	20	11	64
II Topics Connected with School Discipline					
1. Defacing a desk.....	..	..	..	1	1
2. Noisy students.....	..	..	..	1	1
3. Tardiness.....	..	..	..	1	1
4. Washing the blackboard.....	..	..	1	..	1
5. Class failures.....	..	4	1	..	5
6. Keeping after school hours.....	..	1	..	..	1
7. Reactions to other teachers.....	..	1	..	..	1
Total.....	0	6	2	3	11
III Topics Connected with Social Activities					
1. Class picnics.....	1	2	..	3	6
2. Week-end party.....	..	..	1	..	1
3. Learning to dance.....	..	1	..	..	1
4. Thanking chaperon.....	..	..	1	..	1
5. Junior-senior banquet.....	1	2	2	3	8
Totals.....	2	5	4	6	17
IV Topics Connected with Clubs and Other Extracurricular Activities					
1. Girl Scouts.....	..	..	..	1	1
2. Hi-Y.....	3	..	..	..	3
3. Agriculture Club.....	5	..	..	..	5
4. School finance plan.....	..	..	2	..	2
5. School paper.....	..	..	2	..	2
6. School election.....	1	..	..	..	1
Totals.....	9	0	4	1	14

JUNIOR-SENIOR HIGH SCHOOL CLEARING HOUSE

TABLE VII—Continued

A CLASSIFICATION OF THE TOPIC DISCUSSED IN TALK CONTACTS

Topics	By Men Teachers With		By Women Teachers With		Total
	Boys	Girls	Boys	Girls	
V Topics Connected with Personal Affairs of the Pupils					
1. Finding a dress for banquet.....	..	..	..	2	2
2. Graduation presents.....	..	..	..	3	3
3. Finding a place to work.....	..	..	..	1	1
4. Working through high school.....	..	..	..	1	1
5. Adjustments to another pupil.....	..	..	..	3	3
6. Death of girl's mother.....	..	..	..	1	1
7. Wearing of long dresses.....	..	..	..	1	1
8. Buying and selection of senior in- vitations.....	..	3	..	4	7
9. A lost pin.....	..	..	..	1	1
10. Illness of father.....	..	..	..	1	1
11. Losing a horse.....	..	..	..	1	1
12. Autographing school annual.....	..	1	..	..	1
13. Learning to swim.....	..	..	..	1	1
14. Examining old annual.....	..	..	..	1	1
15. Working after school.....	..	2	..	..	2
Totals.....	0	6	0	21	27
VI Topics Connected with the Sharing of Pupil's Experience					
1. Week-end party.....	1	..	..	..	1
2. Book read by the pupil.....	..	..	..	2	2
3. Police killing a dog.....	..	..	1	..	1
4. Prize fights.....	..	..	1	..	1
5. Movies.....	..	1	1	..	2
6. The rural-church problem.....	..	..	1	..	1
7. Fast driving.....	1	..	..	..	1
8. Capture of a moth.....	1	1	..	..	2
9. Gathering of a leaf.....	1	..	..	..	1
10. Starting a car.....	1	1	..	..	2
11. Catholic masses.....	1	..	..	..	1
12. Prison labor.....	1	..	..	..	1
Totals.....	7	3	4	2	16
VII Topics Connected with Vocational Guidance					
1. Interest in public speaking.....	..	1	..	1	2
2. Plans for college.....	1	2	3	1	7
3. Plans for next year.....	2	3	2	4	11
4. Plans for vocation.....	1	1	1	2	5
Totals.....	4	7	6	8	25

A STUDY OF "TALK CONTACTS" OF ADOLESCENT PUPILS

The above table shows the wide range of topics which formed the basis of the pupil-teacher relationship for the week of this investigation. Several points in the data deserve comment. While topics pertaining to classroom work appeared with the greatest frequency in the pupil-teacher conversations, when all the other topics are added together the classroom topics do not constitute much more than a third of the total range of conversations. The data further show significant sex differences in the topics concerning personal affairs, and also demonstrate the adolescents' concern with problems of educational and vocational guidance. While the duty of the teacher as a counsellor may be a matter for debate, the data of Table VII are unmistakably clear in showing that the opportunity of the teacher as a counsellor ranges far beyond the confines of the classroom.

The significance of the preceding statement may be more clearly demonstrated by reference to a few of the talk contacts which were reported during the single week of the investigation.

Teacher KS, instructor in Latin and dean of girls, reported the following contact with ZVW, a junior girl:

Today Z happened to be in my room while I was alone. She mentioned that there was only one reason why she had any anxiety about taking Vergil next year. She said there was one girl now in the third-year Latin class whom she feared. After questioning her Z admitted that the girl was RW. She claimed that R has caused a great deal of trouble for her in the country school—had been the real cause for her failing the eighth grade. She admitted that R was even influencing another girl, RR, away from her. Z said that R had a way of appearing before the teacher to the detriment of another pupil.

I tried to tell Z that she should put herself upon a higher level so as not to be influenced by such pettiness.

MSK, instructor in English, reported the following talk contact with MS, a girl:

Yesterday she came to me about her father's illness. She said school work was very hard under

the circumstances of her father's illness with pneumonia and the attitude of her stepmother. She was worried about the accusation of another girl that she (MS) was skipping school without reason. MS was greatly troubled.

AC, an instructor in commercial subjects, reported the following talk contact with BB, a junior girl:

BB stopped by to say that everybody went to the resort at a nearby lake after the junior-senior banquet. She told who went together and how they didn't get home until two o'clock in the morning. She said her mother didn't like it. She went with EK and said she liked him because he was clean.

The basic results of this investigation may be summarized as follows:

1. The teachers in the five upper grades (grade eight to twelve, inclusive) of a medium-sized mid-western high school during the course of a typical school week reported talk contacts with 175 pupils out of a total enrollment of 535.
2. There was a wide range of individual differences in the number of contacts reported by the various teachers.
3. The difference in the number of contacts reported by the various teachers could not be attributed to the subject taught, nor to the years of teaching experience, nor to the sex of the teacher, but rather to the personality and approachableness of the teacher.
4. Fewer contacts were made by pupils in the eighth grade, and by pupils at the lower levels of intelligence and achievement, than were made by pupils in the upper grades and in the upper levels of achievement and intelligence.
5. Most of the talk contacts occurred in the home-rooms with only one pupil present.
6. While many contacts were regarded by the teachers to be slightly important, the majority were considered genuinely important, and a significant few revealed problems sufficiently grave to require immediate attention.
7. Most of the contacts were initiated by pupils who wanted advice or wanted to share some experience or enthusiasm.
8. While the great majority of the contacts required less than three minutes, a significant number ranged from five minutes to three hours in time, and most of the pupils had talked with the same teachers before the week covered by this investigation.
9. The talk contacts covered a wide range of topics, revealing a greater interest of the girls in personal matters, and a significant interest among

both boys and girls of a vocational and general nature outside the affairs of the classroom.

In conclusion a few comments of interpretation and application may lend perspective to this study.

It is probably significant that so many boys and girls at adolescence want to talk with their teachers. The significance of these conversations should not be determined solely in terms of the immediate gravity of a given case, but also by the rapport and feeling of friendliness built up by the incidental contacts where the pupils want some casual advice or just want to talk. These apparently inconsequential contacts undoubtedly influence the attitudes of pupils in many important ways, and probably build the confidence of the pupils on which unforeseen critical adjustments may later have to be made.

The data of this investigation also indicate certain lacks in the teacher's equipment as a counsellor. In the first place the pupils of early adolescence, and low achievement,

and low ability were not in close contact with their teachers. In the second place, the contacts initiated by teachers pertained primarily to matters of discipline and restraint. In the third place, there was much evidence that the teachers were inclined to minimize or failed entirely to detect several cases of genuinely serious maladjustment.

Finally the investigation demonstrates clearly the opportunity of the high-school teacher as a counsellor of adolescent boys and girls. The writers make the suggestion therefore that teachers should be trained for this opportunity and that a considerable number if not all of the teachers of a high-school staff should be selected on the basis of their qualifications for the understanding and guidance of adolescents as well as on the basis of skill in stimulating the acquisition of skills and information. Any thoroughgoing program of mental hygiene for the adolescent stage of development must therefore include the strategic opportunity of high-school teachers in their incidental talk contacts with their pupils.

OTHERS SAY

The World Tomorrow, for October 1930, published a very interesting article by Goodwin Watson outlining the program of studies as it might be arranged in a school conducted in accordance with the current educational theories. Dr. Watson suggests an organization in six departments as follows: department of health, department of vocations, department of leisure, department of home participation, department of citizenship, and department of philosophy. The purpose of such a school would be in Dr. Watson's words, "to get the needs of modern adolescents rather than merely to see how much of the present chaff could be justified." Within the six departments suggested would be offered a thousand or more units of study and activity. As Dr. Watson says, "a sort of cafeteria of desirable experiences." The question of the function of the teacher in such an organization as this is touched on. Dr. Watson believes that the inadequacy of some teachers as guides for life would be more apparent under the proposed reorganization but would not be any

more real than they already are. He believes also that the effective teacher who makes opportunity to deal with real life problems under present requirements would have this opportunity multiplied. He believes, moreover, that the scheme is entirely feasible at the present time. It can be put into operation by administrators who feel it their duty to create ways of doing what is desirable rather than merely to select educational policies in accordance with their ease of administration.

A. D. W.

UNITED STATES COMMISSIONER OF EDUCATION, JOHN W. COOPER, ADVOCATES SIX UNITS IN OUR EDUCATIONAL SYSTEM

At a meeting of the Association of Colleges and Secondary Schools of the Middle States and Maryland at Atlantic City on November 28 and 29, Commissioner Cooper suggested the following units:

He suggested that the first unit take children

OTHERS SAY

up to seven years of age in what is known as the nursery school, kindergarten, and the first grade for the purpose of the formation of desired habits, mostly personal and social.

In the second unit, taking children from 7 to 12, the Commissioner would continue these habits with four tools or keys, mother tongue, the processes of arithmetic, music, and graphic arts.

Another unit was to take in children from 13 until the end of the compulsory-school period, giving guidance studies and service wherever it belongs, divided into three groups—trades, semi-professions, and the professions. This unit, he said, would be along the same lines as the high school.

The next unit would be comprised of persons up to 20 years of age to prepare for semiprofessions and a general education.

The next would be the university for persons past 20 seeking a professional training and research work.

The final unit would be an adult school, the Commissioner pointing out that education is never complete and knowledge is continually growing.

Atlantic City Herald

NATIONAL CONVENTION ON VISUAL EDUCATION

The Eleventh Annual Convention will be held on February 24 and 25, 1931, at Detroit, Michigan. Headquarters will be at the Fort Wayne Hotel. Topics for discussion will be: "The Place of Visual Education in a City School System" and "Training Teachers in the Effective Use of Visual Aids in Instruction."

Reports of research and studies will be given and meetings will be held to deal with the problems attending visual instruction at all school levels.

NEW YORK UNIVERSITY IS TO SPONSOR A CLINIC IN HIGH-SCHOOL JOURNALISM

A clinic in high-school journalism, intended to set a standard and to prepare students more effectively for college periodicals, is planned by the journalism department of New York University. The clinic will have laboratories at Washington Square, where all high-school papers will be filed for reference.

Faculty advisers of high-school papers will be

called together to discuss their problems. A conference has been set for Saturday, December 20.

A letter outlining the plan has been sent out by the journalism department to local high schools. It asks the following questions:

Would you be willing to coöperate with us in the establishment of a clearing house for ideas here at New York University?

Would you like to participate in a clinic having to do with the consideration of high-school newspaper production?

Professor Loren H. Milliman, of the journalism department, reports that the response had been most gratifying.

Professor Henry B. Rathbone, chairman of the journalism department, pointed out that the clinic plan was being advanced because of the increasing necessity of arriving at some standard in high-school problems and of preparing student editors to function effectively in periodical literature.

New York Herald Tribune

TO MEET NEWER IDEALS AND FORCES

The curriculum, both of high school and college, should be built so as to prepare students for specific objectives in business and professional life.

Both school and college should give increased attention to personnel and vocational guidance.

There should be available for educators complete reports indicating demand in business and professional life for students who are in course of preparation for various types of pursuits.

There should be renewed insistence on thorough and disciplined training of the mind.

The aim should be to isolate and develop the gifted student.

Ohio Schools, September 1930

THE VOICE OF THE NEW SCHOOL

"The new teacher who is the voice of the new school and its spirit must be an artist in living. No cloistered spirit can serve here. The heat and labor of the day, the sting of failure, the thrill of success, the daily hand-to-hand struggle with life must be the very breath of his nostrils. Our children must be reared to live fully. School must be the kind of place that permits full, brave, daring living."—Angelo Patri.

Alaska School Bulletin

BOOK NOTES

THE CHALLENGE OF INDIA

In *The Lives of a Bengal Lancer*, Francis Yeats-Brown has achieved an unusual literary feat. Although writing of his personal reactions to life in India, he has been able to view his experiences objectively, thus giving his narrative an artistic quality that few autobiographical writings possess. When writing of their own experiences most modern authors are so eager "to tell all" that they swamp their readers in detail, leaving nothing to the imagination.

By his faith in our creative ability as readers, this author sets up a subtle bond of sympathy, making us tolerant rather than critical, when his mystic speculations exceed our comprehension. Having never been in India ourselves, we reason, how can we tell how we would react to the fearful tropical heat, the complete lack of western physical and moral laws, and the mystic power of philosophies thousands of years old?

I may be placing undue emphasis on the philosophical and speculative qualities of the book for there is, measured in print, much less of this than of vivid recollections of polo games, pig sticking, and adventure in the air as "observer" over the enemy lines in Mesopotamia. But through all these experiences of the sportsman and soldier the author is investigating and evaluating the ancient civilization in which his sporting arena is set.

After playing a game of polo with complete absorption in the sport shared alike by author and reader, we find it quite natural to follow him into deep philosophical contemplation that so often comes after absolute physical exhaustion.

"Up and up, with Brownstone panting at my heels. . . . We are following the path that leads to the crest of Cheena. . . .

"The albatross knows its way about the sea better than the most experienced cap-

tain.' Where did I read that? It is true, Instinct is better than Knowledge. My life as a soldier is jolly enough while it lasts, but its pleasures are as fickle as the fumes of champagne. Here on the mountains, alone with my thoughts and my dog, I am sober again.

"The Himalayas stand up before me in the moonlight so close, so high, that I catch my breath as I lift my eyes to them.

"Dear mountains which India has worshipped since the dawn of history, before your mighty towers and turrets, your lonely heights and snows, your music of tree and water, I am humbled and content. I bless your silence and peace, cities of the Aryan soul.

". . . But tonight as I lie stretched on these pine needles the desire of experiencing has left me utterly. Mother Earth has emptied my head of thoughts and Brownstone's jowl is on my chest."

It is refreshing to find a man capable of such sympathetic understanding of alien peoples yet not ashamed to express a great love for his own country. Here is a patriotism so great that it rejoices in a love of country shared with all men.

"My veins were proud that they carried English blood and that they were part of a stream greater than all present lives. I saw the careful fields, the opal distances, the lovely haze upon the land, its sleek cattle, its sheep thick-nibbling the pastures, its rich content and strength. The physical sources of my being were revealed. I was nearly thirty and learning to love my country."

The author does not discuss and debate the many problems of India. He is too wise to offer solutions. He neither opposes nor advocates political freedom. And yet, as we who have read this book follow the destiny of India, we will again and again recall the impressions we have shared with

BOOK NOTES

this delightfully human, open-minded, and sensitive writer. M. W.

Some recent Booknotes selected from *The Booklist*, published by the American Library Association

Westward; the Romance of the American Frontier, by Edward Douglas Branch. (Woodcuts by L. S. Wakefield). New York: Appleton, 1930. 626p. illus. maps. \$5.00.

A history of the westward movement of American life, from 1660 on, that is not concerned with political events, but with the conquest of physical obstacles. "The battle with Nature, the wilderness; the taming of the land—that is the essential conflict. It was a battle fought and won by plain Men; with them this narrative deals."—*Introduction*. A good popular account.

Jobs for Girls, by Hazel Rawson Cades. New York: Harcourt, 1930. 208p. \$2.00.

The lively advice given in these chapters on how to get work and how to keep it is general rather than specific. Nineteen fields of work in which women have been successful are described. A part of the material appeared in the *Woman's Home Companion*.

The Little Theatre in School, by Lillian Foster Collins. New York: Dodd, 1930. 271p. illus. \$2.50.

The author, who is director of drama in the Thomas Jefferson school in Cleveland, shows the possibilities and the operation of a children's theater as a regular part of the school curriculum. It is not a theoretical discussion, but a practical exposition of how to find and produce plays of educational value, and how to write plays with children. Texts of four short plays are given and the book is illustrated with photographs of productions.

Life in Elizabethan Days; a Picture of a Typical English Community at the End of the Sixteenth Century, by William Stearns Davis. New York: Harper, 1930. 376p. illus. \$3.50.

In the same readable manner as in his *Life on a Medieval Barony*, Mr. Davis recreates here the very atmosphere and realities of life in England in 1590. Scarcely a phase of that life seems to have been omitted; food, clothing, weddings, re-

ligious practices, schools, plagues, doctors, printing, housing, vagabonds, law, ships, the stage, and all that went to make up the daily life of all classes are presented. Typical characters appear throughout, thinking and talking as people did in that day.

Manual of Flight, by Ienar Ewald Elm. Philadelphia: McKay, 1930. 157p. illus. \$3.00.

"Contains the fundamental knowledge of flying that should be part of the equipment of every man or woman who intends to fly either for pleasure or profit. The requirements to become a competent pilot are clearly explained. Elementary and advanced flight maneuvers are covered in detail, and the actual hazards and safety of air travel are given without bias."—*Subtitle*. The book may serve as supplementary instruction for students, or as a manual of general information for others interested in aviation. Illustrated with photographs and diagrams of maneuvers.

The Soviets in World Affairs; a History of Relations Between the Soviet Union and the Rest of the World, by Louis Fischer. London: Jonathan Cape; New York: Cape & Smith, 1930. illus. 2v. each, \$5.00.

These two volumes give a history of Russia's foreign relations, political and economic, from the Bolshevik revolution to the present time. A great deal of research and investigation has gone into the work. It is based upon Russian, German, and British archives, some as yet unpublished. Each country is discussed separately and in detail, the whole giving an illuminating picture of world politics. The author, who is correspondent for the *Nation* in Moscow, deplors America's nonrecognition of the Soviet Government. His style is entertaining and readable, giving full value to the dramatic and unusual.

Roadside Meetings, by Hamlin Garland. (Decorations by Constance Garland.) New York: Macmillan, 1930. 474p. illus. \$3.50.

An important literary biography. It supplements the more personal family histories of the Middle Border books with the story of Mr. Garland's friendships with men and women of the literary world. The pages are filled with entertaining reminiscences of Stephen Crane, Riley, Whitman, Barrie, Kipling, and many others whose paths crossed the author's in the last fifty years.

About Women, by John Albert Macy. New York: Morrow, 1930. 314p. \$2.50.

Mr. Macy warns men that America is in danger of being weakened by feminization. He expresses fearlessly and entertainingly his opinions about what woman's position is and what it should be, and shows the part she has played in politics, religion, morals, and history.

Twice Born in Russia; My Life Before and In the Revolution, by Natalia Petrova, pseud. (Translated by Baroness Mary Budberg; introduction by Dorothy Thompson.) New York: Morrow, 1930. 193p. \$2.00.

Suffering terrible hardships and often close to starvation, this woman of the Russian aristocracy lived through the terrors of the revolution, supporting herself and her crippled child by unaccustomed menial work. She tells her experiences briefly and simply: there is no discussion of political issues, and, strangely enough, no animosity or bitterness.

The Conquest of Happiness, by Hon. Bertrand Arthur William Russell. New York: Liveright, 1930. 249p. \$3.00.

Mr. Russell believes that a scientific man is more likely to achieve happiness than others since he expends the best of his ability to discover a truth which is important to the general public as well as to himself. The book is simply written, sincere, and full of penetrating common sense, freshly presented.

FICTION

Cakes and Ale, or, The Skeleton in the Cupboard, by William Somerset Maugham. New York: Doubleday, Doran, 1930. 308p. \$2.00.

When the time came for a biography of Edward Driffield, the late dean of English novelists, his

literary executors were embarrassed by the skeleton in the cupboard. Rosie, the artless ex-barmaid of loving disposition and no morals, who had been Driffield's first wife, had inspired his best work, but she had no place in the legend of respectability which the second Mrs. Driffield had built up about him. The novel is outstanding for its excellent characterization and its satiric presentation of the rise of a literary personage, and Mr. Maugham's interpolated personal comments on literature and manners, though they delay the progress of the story, will delight many readers.

Rudolph and Amina, or, The Black Crook, by Christopher Darlington Morley. New York: John Day, 1930. 197p. \$2.00.

This story of two lovers is staged in the Harz mountains region, home of the famous canaries. There is one in the story. The tale resembles a lively musical comedy in fairy-tale days, with a black crook and a wicked count who desires Amina—and nearly gets her. Mr. Morley pokes sly fun at many present-day customs by the most modern allusions in the midst of this romantic setting. A delight throughout in its wit, fancy, and simple English.

The Bitter Tea of General Yen, by Grace Zaring Stone. (Illustrations by Barbara Macfarlane.) Indianapolis: Bobbs-Merrill, 1930. 322p. illus. \$2.00.

Megan, fiancée of a medical missionary, is captured by a Chinese general. The author says of her: "Megan did not have a very keen sense of humor. . . . She considered it the refuge of those who dare not look facts in the face." But there are facts which she sees very dimly as her naive moral fervor battles with the general's ancient sophistication. Those who read for plot may resent Megan's bodily security and fail to sympathize with the annoyance of Mr. Shultz, the general's financial adviser, when, finally, he is forced to rescue her and leave General Yen to die at the hands of the opposing army.

BOOK REVIEWS

Planning Your Future, by GEORGE M. MYERS, GLADYS M. LITTLE, and SARAH A. ROBINSON. New York: McGraw-Hill Book Company, xii + 417 pages.

The problem of bringing information regarding the world of occupations to the early adolescent so

that he may broaden his "knowledge and appreciation of the world's work," and enable him to think intelligently and seriously about his own vocational plans for the future is a problem every modern high school faces. With that problem in mind, the authors have selected and arranged materials in this book which will give students valuable information

BOOK REVIEWS

about numerous occupations. The material is well arranged for class study purposes and definite problems for individual or group study are given at the end of each unit of work.

Beginning with a general view of the world of occupations, the study is then directed to a consideration of the specific occupations of the pupil's own community. An effort is made to enable the pupil to discover facts about vocations which every worker should know and to direct him to a discovery of his own place in the working world.

The book presents much material of a very great practical nature and the problems relate themselves closely to the individual's own interests. Teachers concerned with guidance problems should welcome this contribution to the field. Its use, especially in junior high school, should not only enable the individual to gain valuable information regarding vocations, but it should also lead him to develop proper attitudes towards work and to enable him to do more intelligent planning for his own future.

C. L. W.

Jobs for Girls, by HAZEL RAWSON CADES. New York: Harcourt, Brace and Company, vi + 208 pages.

Up-to-date information regarding more than twenty different types of work which offer excellent opportunities for the ambitious American girl is given in this volume. The requirements for success, the opportunities for advancement, the compensation to be expected, and the principal advantages and disadvantages of each type are emphasized. The author also indicated what training is necessary for each type of work and where girls may go to get such training. The information presented by the author should prove very practical and illuminating for girls in high school who contemplate leaving school in order to go to work. The book should be made available for all high-school girls who may be interested in finding suitable jobs.

C. L. W.

Guiding Rural Boys and Girls, by O. LATHAM HATCHER, Ph.D. Edited by Emery N. Ferriss. New York: McGraw-Hill Book Company, xviii + 326 pages.

"Country children's need for guidance is especially acute in that most of them face crucial decisions as to whether to stay in the country or to leave it." Few of them gain an adequate understanding as to the advantages and disadvantages which either country life or city life has to offer. In many cases their teachers are unable to give them accurate information concerning this problem.

In an effort to serve the needs of rural teachers and others concerned with guidance problems of rural boys and girls, the author presents the basic principles of successful guidance and offers a number of suggestive and flexible guidance plans which may be used in rural communities. While the major emphasis is perhaps on educational and vocational counseling, other important aspects of guidance, such as guidance in health, in social and civic behavior, in moral character, in avocational interests, and in aesthetic appreciation receive considerable emphasis. The suggestions and plans offered by the author should prove helpful to many thoughtful rural educators.

C. L. W.

Education and the Summer Camp, by LLOYD BURGERS SHARP. New York: Teachers College, Bureau of Publications, 114 pages.

A very interesting study of the place of the summer camp in an educational program. The author traces the steps by which the summer camps evolved from mere devices for getting children out of the city during the hot weather into instruments for carrying out the highly organized and effective program of educational activities that now characterize them. The recommendations should be of great value to the directors of many of the long-established camps in which procedures have become somewhat stereotyped, as well as to those who are actively seeking improved methods of administering camp activities.

A. D. W.

Civics and Industry, by DEWITT S. MORGAN and OKA S. FLICK. New York: McGraw-Hill Book Company, vii + 288 pages.

The authors of this treatise have founded their discussions of civic and industrial problems on the premise that improvement in civic and industrial relationships springs only from recognition of the basic elements of the economic order and from understanding by all parties in industry of the forces which operate according to economic law.

From this point of view they have presented an enlightening discussion of the industrial and commercial life of America, with constant emphasis upon the necessity of intelligent, democratic cooperation among all classes, and upon the promotion of mutual recognition of the significant part played in industry by workers of all sorts.

The book is designed for the use of pupils in high school who are on the point of entering upon active

participation in industry. It should be useful in setting up socially desirable attitudes and ideals. It is, moreover, highly concrete and practical in its attack on social problems. The treatment is concrete and the illustrative material is well selected.

A. D. W.

Examinations Seventy-five Years Ago and Today, by LOUIS J. FISH. New York: World Book Company, ix + 29 pages.

This pamphlet offers us convincing evidence of the superiority of the elementary schools of today over those of three quarters of a century ago. The author, who is educational statistician of the public schools of Boston, has compared the educational equipment of pupils entering high school in 1853 with that of eighth-grade pupils of today, with the result distinctly in favor of the latter.

A high-school entrance examination of 1853, in grammar, arithmetic, and geography, was given to two hundred eighth-grade pupils in 1929, and their scores were compared with those of twenty pupils who took the original examination seventy-six years ago, and whose individual scores were available. The superiority of the 1929 group is sufficient to set at ease the minds of parents whose observations of contemporary schools have led them to be apprehensive lest the "three R's" are not receiving adequate attention in our enriched program.

A. D. W.

New Narratives, compiled and edited by BLANCHE COLTON WILLIAMS. New York: D. Appleton and Company, xii + 365 pages.

It is the business of the junior high school to develop the taste for reading and bring home to pupils the living reality of literature. One of its aims should be to produce much reading rather than the highest quality of reading carefully analyzed. Phases of human activity that should be emphasized are home and school life, the influence of nature, travel, commerce, exploration, fellowship, loyalty, world citizenship.

With these principles as guides, Dr. Williams has assembled for junior-high-school pupils a varied and refreshing collection of contemporary short stories. On the assumption that literature exists primarily to give pleasure, these tales have been selected not because they point morals, but because they reveal human attitudes, problems, and aspirations within the real life that the junior-high-school pupil sees about him. Each story contains something that should linger with the young reader long after the story is forgotten and should guide

him in the unconscious formation of his own character. The writer feels that this book has great merit.

A. D. W.

A. Lincoln, by ROSS F. LOCKRIDGE. New York: World Book Company, xiv + 320 pages.

In adding another book to the many about Lincoln, Mr. Lockridge's purpose is primarily to offer a text that can be used to advantage by children in the junior high school and the corresponding grades. Although his function is not that of the higher critic or special investigator, the author takes great pains to present his facts accurately, and to leave the young reader with a grasp of the salient features of his subject.

The story of Lincoln, from his humble origin to his seat among the mighty, is told effectively. The man and the human element are kept to the fore. It is the story of pioneer conditions as well as of Abraham Lincoln, and it is clearly indicated that the man was the product of the environment. Lincoln's achievements were accomplished not in spite of his surroundings, but because of them.

The story told by Mr. Lockridge will interest older readers as well as adolescents. It is well and plentifully illustrated with reproductions of paintings and photographs.

A. D. W.

The New Education in Austria, by ROBERT DOTTRENS. Edited by Paul L. Dengler. New York: The John Day Company, 226 pages.

Revolution made of Austria a Federal Republic. Overnight the subjects of an emperor were turned into citizens of a democratic country. So complete a transformation did not fail to react upon public instruction. No longer is it a question of rearing faithful subjects, docile workmen, and obsequious officials. The school must now breed capable citizens, strong of character, sure in judgment, and upright in conscience. Moreover the country is struggling; in order to exist it must produce much and well. The school's task is double: It must strengthen the republican régime and it must become the instrument of economic revivification.

In the effort to meet this double demand there has taken place in the mind of the Austrian people a veritable revolution. The principle that knowledge of the child is the first requisite of education has led to the adoption of three guiding principles of method: (1) the principle of self-activity; (2) the principle of accustomed environment; and (3) the principle of concentrated instruction.

BOOK REVIEWS

The application of these principles to the whole range of public instruction in Austria is the theme of Dr. Dottrens's book. It should be of great interest to Americans to read of an entire national school system in which are being carried out many of the methods which we are accustomed to associate with somewhat widely separated institutions of an advanced or progressive reputation. What makes this reform in Austria so interesting to the world is its great effect on broad masses of the population.

A. D. W.

Supervising Extra-Curricular Activities in the American Secondary School, by PAUL W. TERRY. New York: McGraw-Hill Book Company, 1930. 417 pages.

Student life is the primary educational program of the modern high school. For most youths they constitute the very core of the curriculum. To such pupils the studies are frequently merely necessary evils; lessons are learned and recited as the price that must be paid to Caesar in order that life may be lived in all its potential richness.

The volume under review contains a very comprehensive survey and evaluation of what the author terms the "extracurricular" activities, but which he

apparently thinks of as civic training. Why civic arts would be extracurricular any more than translation arts and mathematical arts puzzles the reviewer.

Part I presents the historical and theoretical backgrounds of student activities which contains a broad and adequate philosophical foundation. Parts II and III are largely descriptive in their treatments of student participation in school government and of important types of student organizations. Part IV deals with problems of organization and supervision of student activities which give potential training in the civic arts, closing with an appeal for balanced, controlled, and evaluated social program.

The book is clearly written, well documented, and attractively printed. It should be a valuable text for classes which are studying about student activities rather than engaging in them. It should find a place, nevertheless, in the professional library of every high school of which the faculties desire to know the genesis and nature of the activity programs. The reviewer regrets that the author has not more faith in the educative value of life itself as an experimental uncertain emergent democracy. For if democracy is to be blue printed and the traits needed for civic arts defined and developed—will it be a democracy?

P. W. L. C.

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